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THE

HARVARD UNIVERSITY

CATALOGUE.

1872-73.

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1873.

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# CALENDAR.

## 1872.

- Sept. 23, Monday.* Examination for advanced standing in the Medical School.
- Sept. 26, Thursday.* **Academic Year begins** in all departments of the University. Examination for admission to the Scientific and Mining Schools, to the Bussey Institution, and to advanced standing in the Law School.
- Sept. 26 - 28, Thursday to Saturday.* Examination for admission to Harvard College.

RECESS FROM DEC. 24, 1872, TO JAN. 6, 1873, INCLUSIVE.

## 1873.

- Feb. 10, Monday.* **Second half-year begins.** Examination in the Medical School.
- Feb. 12, Wednesday.* Commencement at the Dental School.
- April 15, Tuesday.* Assignment of College Rooms for 1873-74.
- June 18, Wednesday.* Examination in the Medical School.
- June 19, Thursday.* Speaking for the Boylston Prizes.
- June 20, Friday.* Seniors' Class Day.
- June 24, Tuesday.* Visitation of the Divinity School.
- June 25, Wednesday.* Commencement.
- June 26 - 28, Thursday to Saturday.* Examination for admission to Harvard College.
- June 26, Thursday.* Examination for admission to the Scientific and Mining Schools, and to the Bussey Institution.

## SUMMER VACATION, THIRTEEN WEEKS.

- Sept. 22, Monday.* Examination for advanced standing in the Medical School.
- Sept. 25, Thursday.* **Academic Year begins** in all departments of the University. Examination for admission to the Scientific and Mining Schools, to the Bussey Institution, and to advanced standing in the Law School.
- Sept. 25 - 27, Thursday to Saturday.* Examination for admission to Harvard College.

1873.

[illegible]



# HARVARD UNIVERSITY

## COMPREHENDS

HARVARD COLLEGE.

THE DIVINITY SCHOOL.

THE LAW SCHOOL.

THE MEDICAL SCHOOL.\*

THE DENTAL SCHOOL.\*

THE LAWRENCE SCIENTIFIC SCHOOL.

THE BUSSEY INSTITUTION.†

THE LIBRARY.

THE OBSERVATORY.

THE BOTANIC GARDEN AND HERBARIUM.

THE SCHOOL OF MINING AND PRACTICAL GEOLOGY.

THE PEABODY MUSEUM OF AMERICAN ARCHÆOLOGY AND  
ETHNOLOGY.

The last two are constituent parts of the University ; but their relations to it are affected by certain peculiar provisions.

THE MUSEUM OF COMPARATIVE ZOÖLOGY is connected with the University.

\* In Boston.

† In Jamaica Plain.

## THE GOVERNMENT OF THE UNIVERSITY.

HARVARD COLLEGE was founded in 1636, by a vote of the General Court of the Colony of Massachusetts Bay, bearing the date of September 8th of that year.

The language of the vote was as follows :—

“The Court agree to give Four Hundred Pounds towards a *School* or *College*, whereof Two Hundred Pounds shall be paid the next year, and Two Hundred Pounds when the work is finished, and the next Court to appoint where and what building.”

The ensuing year (1637) the General Court appointed twelve of the most eminent men of the colony (among whom were John Cotton and John Winthrop) “to take order for a college at Newtown.” The name, “Newtown,” was soon afterward changed by the General Court to *Cambridge*, in recognition of the English University where many of the colonists had been educated.

The following year (1638) John Harvard, a non-conforming clergyman of England, who had been in the colony about one year, died at Charlestown, leaving half of his whole property and his entire library (about 300 volumes) to the institution. The value of this bequest was more than double the entire sum originally voted by the Court, and it was resolved to open the College at once, and to give it the name of *Harvard*. The first class was formed in the same year.

In 1642, during the administration of the first President, Henry Dunster, the general government of the College and the management of its funds were placed in the hands of a *Board of Overseers* established and empowered by the following Act of the General Court :—

### “THE ACT

#### ESTABLISHING THE OVERSEERS OF HARVARD COLLEGE.

*“At a General Court held at Boston on the 8th of September, in the Year 1642.*

“WHEREAS, through the good hand of God upon us, there is a College founded in Cambridge, in the county of Middlesex, called HARVARD COLLEGE, for the encouragement whereof this Court has given the sum of four hundred

pounds, and also the revenue of the ferry betwixt Charlestown and Boston, and that the well ordering and managing of the said College is of great concernment, —

“It is therefore ordered by this Court and the authority thereof, that the Governor and Deputy-Governor for the time being, and all the magistrates of this jurisdiction, together with the teaching elders of the six next adjoining towns, — viz. Cambridge, Watertown, Charlestown, Boston, Roxbury, and Dorchester, — and the President of the said College for the time being, shall, from time to time, have full power and authority to make and establish all such orders, statutes, and constitutions as they shall see necessary for the instituting, guiding, and furthering of the said College, and the several members thereof, from time to time, in piety, morality, and learning; as also to dispose, order, and manage, to the use and behoof of the said College and the members thereof, all gifts, legacies, bequeaths, revenues, lands, and donations, as either have been, are, or shall be conferred, bestowed, or any ways shall fall or come to the said College.

“And whereas it may come to pass that many of the said magistrates and elders may be absent, or otherwise employed in other weighty affairs, when the said College may need their present help and counsel, — it is therefore ordered, that the greater number of magistrates and elders which shall be present, with the President, shall have the power of the whole. *Provided*, that if any constitution, order, or orders, by them made, shall be found hurtful unto the said College, or the members thereof, or to the weal public, then, upon appeal of the party or parties grieved unto the company of Overseers first mentioned, they shall repeal the said order or orders, if they shall see cause, at their next meeting, or stand accountable thereof to the next General Court.”\*

One of the first labors of the Overseers, in concert with the President, was the formation of a code of laws, which was “published to the scholars for the perpetual preservation of their welfare and government.”

Besides various rules pertaining to good morals and discipline, this code established requisites for admission to the College, and the conditions upon which degrees should be granted. The rules relating to admission and to degrees were as follows: —

“1. When any scholar is able to read Tully, or such like classical Latin author *extempore*, and make and speak true Latin in verse and prose *suo (ut aiunt) Marte*, and decline perfectly the paradigms of nouns and verbs in the

\* This Act is copied from “The General Laws of the Massachusetts Colony, revised and published by order of the General Court in October, 1658”; which was the second edition of the Laws of the Colony, and was printed in 1660. It varies slightly in phraseology from the Act contained in the Records of the General Court, Vol. II. page 24.

Greek tongue, then may he be admitted into the College, nor shall any claim admission before such qualifications.

"18. Every scholar that on proof is found able to read the original of the Old and New Testament into the Latin tongue, and to resolve them logically, withal being of honest life and conversation, and at any public act hath the approbation of the Overseers and Master of the College, may be invested with his first degree.

"19. Every scholar that giveth up in writing a synopsis or summary of Logic, Natural and Moral Philosophy, Arithmetic, Geometry, and Astronomy, and is ready to defend his theses or positions, withal skilled in the originals as aforesaid, and still continues honest and studious, at any public act after trial he shall be capable of the second degree of master of arts."

The Board of Overseers appears to have been found too large a body to have the immediate direction of the College, and in 1650, through the efforts of President Dunster and others, a charter was granted to the College by the General Court, by which the College was made a *Corporation*, consisting of the President, five Fellows, and a Treasurer, or Bursar, to have perpetual succession by the election of members to supply vacancies, and to be called by the name of the *President and Fellows of Harvard College*. The powers conferred by this Act were accompanied with a provision which required that all Orders and By-Laws of the Corporation should have the consent of the Overseers before they went into operation. This provision was found inconvenient and embarrassing in practice, and in 1657 a law was passed, called "An Appendix to the College Charter," by which the acts of the Corporation were declared to have immediate force and effect, and to be merely "alterable" by the Overseers, to whom the Corporation was to be "responsible."

The text of the College Charter, and of the Appendix to the same, is as follows :—

#### "THE CHARTER

OF THE PRESIDENT AND FELLOWS OF HARVARD COLLEGE, UNDER THE SEAL OF THE COLONY OF MASSACHUSETTS BAY, AND BEARING DATE MAY 31, A.D. 1650.

"Whereas, through the good hand of God, many well-devoted persons have been, and daily are, moved and stirred up to give and bestow sundry gifts, legacies, lands, and revenues, for the advancement of all good literature, arts, and sciences, in HARVARD COLLEGE, in Cambridge, in the county of Middlesex, and to the maintenance of the President and Fellows, and for all accommodations of buildings, and all other necessary provisions that may conduce to the education of the English and Indian youth of this country in knowledge and godliness, —

"It is therefore ordered and enacted by this Court and the authority thereof, that for the furthering of so good a work, and for the purposes aforesaid, from henceforth that the said College in Cambridge, in Middlesex, in New England, shall be a Corporation, consisting of seven persons, to wit, a President, five Fellows, and a Treasurer or Bursar ; and that HENRY DUNSTER shall be the first President, SAMUEL MATHER, SAMUEL DANFORTH, Masters of Art, JONATHAN MITCHELL, COMFORT STARR, and SAMUEL EATON, Bachelors of Art, shall be the five Fellows, and THOMAS DANFORTH to be present Treasurer, all of them being inhabitants in the Bay, and shall be the first seven persons of which the said Corporation shall consist; and that the said seven persons, or the greater number of them, procuring the presence of the Overseers of the College, and by their counsel and consent, shall have power, and are hereby authorized, at any time or times, to elect a new President, Fellows, or Treasurer, so oft, and from time to time, as any of the said person or persons shall die or be removed ; which said President and Fellows for the time being shall forever hereafter, in name and fact, be one body politic and corporate in law, to all intents and purposes, and shall have perpetual succession, and shall be called by the name of *President and Fellows of Harvard College*, and shall from time to time be eligible as aforesaid ; and, by that name, they and their successors shall and may purchase and acquire to themselves, or take and receive upon free gift and donation, any lands, tenements, or hereditaments, within this jurisdiction of the Massachusetts, not exceeding the value of five hundred pounds per annum, and any goods and sums of money whatsoever to the use and behoof of the said President, Fellows, and scholars of the said College ; and also may sue and plead, or be sued and impleaded, by the name aforesaid, in all courts and places of judicature within the jurisdiction aforesaid.

"And that the said President, with any three of the Fellows, shall have power, and are hereby authorized, when they shall think fit, to make and appoint a common seal for the use of the said Corporation. And the President and Fellows, or the major part of them, from time to time, may meet and choose such officers and servants for the College, and make such allowance to them, and them also to remove, and, after death or removal, to choose such others, and to make from time to time such orders and by-laws, for the better ordering and carrying on the work of the College, as they shall think fit ; *provided* the said orders be allowed by the Overseers. And also that the President and Fellows, or major part of them, with the Treasurer, shall have power to make conclusive bargains for lands and tenements, to be purchased by the said Corporation for valuable considerations.

"And, for the better ordering of the government of the said College and Corporation, — Be it enacted by the authority aforesaid, that the President and three more of the Fellows shall and may from time to time, upon due warning or notice given by the President to the rest, hold a meeting for the debating and concluding of affairs concerning the profits and revenues of any lands, and disposing of their goods (provided that all the said disposings be

according to the will of the donors), and for direction in all emergent occasions, execution of all orders and by-laws, and for the procuring of a general meeting of all the Overseers and Society, in great and difficult cases, and in cases of non-agreement; in all which cases aforesaid, the conclusion shall be made by the major part, the said President having a casting voice, the Overseers consenting thereunto. And that all the aforesaid transactions shall tend to and for the use and behoof of the President, Fellows, scholars, and officers of the said College, and for all accommodations of buildings, books, and all other necessary provisions and furnitures as may be for the advancement and education of youth in all manner of good literature, arts, and sciences.

"And, further, be it ordered by this Court and the authority thereof, that all the lands, tenements, or hereditaments, houses, or revenues, within this jurisdiction, to the aforesaid President or College appertaining, not exceeding the value of five hundred pounds per annum, shall from henceforth be freed from all civil impositions, taxes, and rates; all goods to the said Corporation, or to any scholars thereof, appertaining, shall be exempted from all manner of toll, customs, and excise whatsoever; and that the said President, Fellows, and scholars, together with the servants, and other necessary officers to the said President or College appertaining, not exceeding ten, — viz. three to the President and seven to the College belonging, — shall be exempted from all personal civil offices, military exercises or services, watchings and wardings; and such of their estates, not exceeding one hundred pounds a man, shall be free from all country taxes or rates whatsoever, and none others.

"In witness whereof, the Court hath caused the seal of the Colony to be hereunto affixed. Dated the one and thirtieth day of the third month, called May, anno 1650.

"[L. s.]

THO : DUDLEY, *Governor.*" \*

"AN APPENDIX TO THE COLLEGE CHARTER, GRANTED BY AN ACT OF THE GENERAL COURT OF THE COLONY, PASSED A.D. 1657.

"*At a General Court held at Boston, the 14th of October, 1657.*

"In answer to certain proposals presented to this Court by the Overseers of HARVARD COLLEGE, as an appendix to the College Charter, it is ordered,—

"The Corporation shall have power, from time to time, to make such orders and by-laws, for the better ordering, and carrying-on of the work of the College, as they shall see cause, without dependence upon the consent of the Overseers foregoing. *Provided always*, that the Corporation shall be responsible unto, and those orders and by-laws shall be alterable by, the Overseers, according to their discretion.

\* The above is a copy of the original Charter, engrossed on parchment, under the signature of Gov. Dudley, with the Colony seal appendant, in the custody of the President and Fellows of Harvard College. The Charter, varying slightly in phraseology, is also contained in the Records of the General Court, Vol. IV. page 10.

"And when the Corporation shall hold a meeting, and agreeing with College servants, for making of orders and by-laws, for debating and concluding of affairs concerning the profits and revenues of any lands or gifts, and the disposing thereof, (provided that all the said disposals be according to the will of the donors), for managing of all emergent occasions, for the procuring of a general meeting of the Overseers and Society in great and difficult cases, and in cases of non-agreement, and for all other College affairs to them pertaining, — in all these cases the conclusion shall be valid, being made by the major part of the Corporation, the President having a casting vote. *Provided always*, that, in these things also, they be responsible to the Overseers as aforesaid.

"And in case the Corporation shall see cause to call a meeting of the Overseers, or the Overseers shall think good to meet of themselves, it shall be sufficient unto the validity of College acts, that notice be given to the Overseers in the six towns mentioned in the printed law, anno 1642, when the rest of the Overseers, by reason of the remoteness of their habitations, cannot conveniently be acquainted therewith." \*

The Corporation and the Board of Overseers remain to the present time the governing powers of the University; and this charter is now in force precisely as first drafted in 1650, notwithstanding that several attempts were made, during the first fifty years of its existence, to alter it or to substitute another in its place.

The first attempt of this kind occurred in 1672, when an ordinance was passed by the General Court, which was intended as a substitute for the existing charter. It altered the name of the Corporation from "President and Fellows of Harvard College" to that of "President, Fellows, and Treasurer of Harvard College"; it modified their powers in some respects, and granted important additional ones, civil and collegiate. But although this charter is entered at large in the journal of the General Court, it does not appear in the records of the College, nor is any notice taken of it in the general history of the times. It is certain that the Corporation never assumed the name given by the Act, and there exists no evidence that they ever modified their proceedings according to its provisions.

The next attempt was made in 1692. No sooner was the Provincial government organized under the charter of William and Mary, than a bill for a new charter for the College was passed by the General Court. This charter, which was the work of President Increase Mather, increased the number of members of the Corporation to ten, and conferred upon them some extraordinary powers. Above all, it vested all powers in the ten members of the Corporations absolutely, without any control or re-

\* This Act is taken from the Records of the General Court, Vol. IV. page 265.

sponsibility, making no provision for a Board of Overseers or for a visitatorial power of any kind. After passing the General Court, and receiving the approbation of the governor, this charter was sent to England for the approval of the King. Meanwhile the Corporation established by it, without waiting for the King's decision, entered at once upon the exercise of their powers. The charter was negatived by the King in Council, "on the ground of its not providing for a visitation of the King by his governor."

The constitution of the College seems to have been a favorite subject for political managers during the time of Increase Mather. No less than three different charters, which would have essentially changed the organization of the College, were proposed in the years 1696, 1697, and 1699, respectively, and passed both branches of the colonial legislature; but for want of the executive or royal sanction no one of them went into permanent operation. In 1700 a new draft of a charter was prepared "to be solicited for to his Majesty," which passed both branches of the legislature; but it was never presented to the King, and no subsequent attempt was ever made to obtain a College charter from the Crown.

After the constitution of the College had been for a number of years in this unsettled condition, and after repeated attempts to obtain a new charter had all failed, the General Court in 1707 passed the following vote, reasserting the integrity and force of the Charter of 1650, and it remains "the venerable source of collegiate authority" to this day.

"EXTRACT FROM A RESOLVE OF THE PROVINCIAL GENERAL COURT, PASSED A.D. 1707, DECLARING THE COLLEGE CHARTER OF 1650 NOT REPEALED, AND DIRECTING THE PRESIDENT AND FELLOWS OF THE COLLEGE TO EXERCISE THE POWERS GRANTED BY IT.

*"At a Great and General Court for her Majesty's Province of the Massachusetts Bay, begun and held at Boston upon the 28th of May, 1707, and continued by several prorogations unto the 29th of October following, being the third session.*

"IN COUNCIL.

*"Thursday, December 4, 1707.*

"And inasmuch as the first foundation and establishment of that House [Harvard College, in Cambridge], and the government thereof, had its original from an act of the General Court, made and passed in the year 1650, which has not been repealed or nulled, — the President and Fellows of the said College are directed, from time to time, to regulate themselves according to the rules of the Constitution by the said Act prescribed, and to exercise the



powers and authorities thereby granted for the government of that House, and the support thereof.

*"Saturday, December 6, 1707.*

"The Representatives returned the Vote passed in Council, the 4th. current, referring to the College, with their concurrence thereunto.

"By his Excellency the Governor, consented to,

"JOSEPH DUDLEY." \*

In 1780, when a Constitution was framed for the new Commonwealth of Massachusetts, the following Articles were introduced, securing to the President and Fellows of Harvard College the perpetual enjoyment of all their vested rights and powers, and providing for the organization of the Board of Overseers.

"THE ARTICLES OF THE CONSTITUTION OF THE COMMONWEALTH OF MASSACHUSETTS, CONFIRMING AND SECURING TO HARVARD COLLEGE THE PERPETUAL POSSESSION AND ENJOYMENT OF ALL ITS ESTATES, RIGHTS, POWERS, AND PRIVILEGES.

#### "CHAPTER V.

##### "SECT. I. — *The University.*

"ART. 1. — Whereas our wise and pious ancestors, so early as the year one thousand six hundred and thirty-six, laid the foundation of HARVARD COLLEGE, in which University many persons of great eminence have, by the blessing of God, been initiated in those arts and sciences which qualified them for public employments both in Church and State; and whereas the encouragement of arts and sciences and all good literature tends to the honor of God, the advantage of the Christian religion, and the great benefit of this and the other United States of America, — It is declared that the *President and Fellows of Harvard College* in their corporate capacity, and their successors in that capacity, their officers and servants, shall have, hold, use, exercise, and enjoy all the powers, authorities, rights, liberties, privileges, immunities, and franchises which they now have, or are entitled to have, hold, use, exercise, and enjoy; and the same are hereby ratified and confirmed unto them, the said President and Fellows of Harvard College, and to their successors, and to their officers and servants respectively, forever.

"ART. 2. — And whereas there have been at sundry times, by divers persons, gifts, grants, devises of houses, lands, tenements, goods, chattels, legacies, and conveyances, heretofore made either to Harvard College, in Cambridge, in New England, or to the President and Fellows of Harvard College, or to the said College by some other description, under several charters successively, — It is declared that all the said gifts, grants, devises, legacies, and conveyances are hereby forever confirmed unto the President and Fellows of

\* This Resolve is taken from the Records of the General Court, Vol. VIII. page 344.

Harvard College, and to their successors in the capacity aforesaid, according to the true intent and meaning of the donor or donors, grantor or grantors, deviser or devisors.

“ART. 3. — And whereas, by an Act of the General Court of the Colony of Massachusetts Bay, passed in the year one thousand six hundred and forty-two, the Governor and Deputy-Governor for the time being, and all the magistrates of that jurisdiction, were with the President, and a number of the clergy in the said Act described, constituted the Overseers of Harvard College; and it being necessary, in this new Constitution of government, to ascertain who shall be deemed successors to the said Governor, Deputy-Governor, and magistrates; — It is declared that the Governor, Lieutenant-Governor, Council, and Senate of this Commonwealth are and shall be deemed their successors; who with the President of Harvard College for the time being, together with the ministers of the Congregational churches in the towns of Cambridge, Watertown, Charlestown, Boston, Roxbury, and Dorchester, mentioned in the said Act, shall be, and hereby are, vested with all the powers and authority belonging or in any way appertaining to the Overseers of Harvard College. *Provided*, that nothing herein shall be construed to prevent the Legislature of this Commonwealth from making such alterations in the government of the said University as shall be conducive to its advantage, and the interests of the republic of letters, in as full a manner as might have been done by the Legislature of the late Province of the Massachusetts Bay.”

It remains to notice certain changes in the constitution of the Board of Overseers, relating to eligibility to office, mode of appointment or election, and the connection between the College and the Commonwealth. The first important change occurred in the year 1810. The reasons which led to this change are thus given by President Quincy: \* —

“By the Act of 1642, the magistrates of the colony and the teaching elders of specified Congregational churches formed, *ex officio*, that board; and its constitution comprised no principle by which individuals particularly qualified could be elected members. At that early period the statesmen and clergy generally included almost all the educated men in the community, and the Board of Overseers, therefore, was then as wisely constituted perhaps as the condition of the colony permitted. But, in the course of a century and a half other classes of men rose into power and influence, and it became desirable that they also should be brought into efficient connection with the College, — and that the Overseers should possess the power of placing at their board individuals particularly qualified, by their talents or attainments, for the superintendence and patronage of a literary institution. In 1780, the critical and disturbed state of the times rendered it inexpedient to attempt any change in the constitution of the seminary, except such as the frame of the Constitution of the Commonwealth made necessary. The disposition, how-

\* History of Harvard University, Vol. II. page 294.

ever, to introduce new influences into the management of the institution was at that time indicated by the election of James Bowdoin into the Corporation, the first individual ever selected as a member of the board, with the exception of the Treasurers, who was not either a clergyman, a professor, or tutor. Experience having shown the advantage of this deviation from the ancient practice, the friends of the College became convinced that important benefits would result, if a right to a seat in the Board of Overseers should be no longer incidental and casual, but be made elective and permanent, with a reference to the qualifications of the individual and his local situation. It was also thought desirable that the right of being eligible to the board should no longer be confined, with regard to the clergy, to the towns specified in the Act. The inconvenience arising to members of the Senate from the duty of attending to the business of the College during the session of the legislature, and their want of interest in the institution from the remoteness of their residence, led many of them, from considerations unconnected with political feeling or prejudices, to desire to be relieved from that service."

An Act was passed by the State Legislature in March, 1810, which changed the organization of the Board in conformity with these views. It is called an "Act to alter and amend the Constitution of the Board of Overseers of Harvard College, and consists of six sections. By the first it is enacted that "The Governor, Lieutenant-Governor, Counselors, President of the Senate, and Speaker of the House of Representatives of the Commonwealth, and the President of Harvard College for the time being, with fifteen ministers of Congregational churches and fifteen laymen, all inhabitants within the State, to be elected as is hereafter mentioned, shall forever hereafter constitute the Board of Overseers of Harvard College."

The second and fifth sections provide for the election of the ministers and laymen, the said elections being made by the ballots of the major part of the Overseers present at a legal meeting.

The third section relates to the choice and duties of a Secretary, the time and manner of meeting, and the duty of presiding at the meetings.

The fourth section specifies when the seat of a minister or of a member shall become vacant, and confers the power of removal from office in certain cases.

The sixth and last section is as follows : —

"This Act shall be in force when the Overseers of Harvard College, as heretofore constituted, and the President and Fellows of Harvard College shall agree to accept the provisions in this Act contained."

The principle that the State could not change the constitution of the College, without the consent of the Corporation and Overseers, was thus

distinctly recognized, and the chartered rights of the College were respected and maintained, at the same time that a more efficient organization was established for the Board of Overseers.

The provisions of this Act were accepted by the President and Fellows on the 16th of March, 1810 ; and by the Overseers on the 12th of April, in the same year.

In 1812, the opponents of the Act of March, 1810, obtained dominant influence in all the branches of the State government, and on the 29th of February, the Legislature, in direct opposition to a memorial from the Corporation, and without making any provision for the consent of the Corporation or Overseers, repealed the Act of March, 1810, and enacted that the Board of Overseers should thereafter be constituted precisely as prior to the last-mentioned Act. The validity of this action on the part of the Legislature was questioned by the Corporation and Overseers, and an appeal to the Supreme Judicial Court was proposed, though never actually made. The Board of Overseers, as organized by the new Act of 1812, met on the 3d of June of that year, and continued to exercise their powers under the authority of this Act until February, 1814, when the Legislature passed an Act "to restore the Board of Overseers of Harvard College, and to make an addition thereto." By this Act the Act passed in 1812, repealing that of 1810, was itself repealed, and the "Senate of the Commonwealth was added to the Board of Overseers constituted by the Act of March, 1810" ; and it was declared that "the Senate shall, together with the persons mentioned in the said last-mentioned Act (that of 1810), hereafter constitute the Board of Overseers of Harvard College." This Act also contained the provision that it should not take effect until it was accepted by the Overseers and by the President and Fellows of Harvard College. The Act was accepted by both Boards in March of the same year.

Until 1834, clergymen, to be eligible to the Board of Overseers, must be Congregationalists ; but an Act was passed by the Legislature of that year opening the Board to clergymen of all denominations, — the Act to take effect whenever accepted by both branches of the College government. It was accepted by them in 1843.

Another Act, "to change the organization of the Board of Overseers," was passed in 1851. It made the Board to consist of

"The Governor, Lieutenant-Governor, President of the Senate, and Speaker of the House of Representatives of the Commonwealth, the Secretary of the Board of Education, and the President and Treasurer of Harvard College, for the time being, together with thirty other persons, as hereinafter defined and described, and no others."

The Act also divided the Board into six equal classes, to be elected and to go out of office in rotation, as described in the following sections : —

"SECT. 3. — The thirty persons, who, in addition to the *ex-officio* members thereof, now constitute the Board of Overseers, shall be divided into three classes of ten each, by lot or otherwise, as they themselves may determine ; and the persons of the first class shall go out of office on the day of the next annual meeting of the General Court, and their places be supplied by joint ballot of the Senators and Representatives of the Commonwealth, assembled in one room ; and the persons of the second class shall go out of office on the day of the annual meeting of the General Court, which will be in the year one thousand eight hundred and fifty-three, and their places be supplied in like manner by joint ballot of the Senators and Representatives ; and the persons of the third class shall go out of office on the day of the annual meeting of the General Court, which will be in the year one thousand eight hundred and fifty-four, and their places be supplied in like manner by joint ballot of the Senators and Representatives. *Provided* that the persons of each of the said outgoing classes shall continue in office for two months after the day of the said annual meeting of the General Court, unless their successors shall have been sooner chosen by the Senators and Representatives.

"SECT. 4. — When the Board of Overseers shall have been wholly renewed in the manner prescribed in the foregoing section, the members thereof shall be divided into six equal classes, by subdivision of the previous classes into two each, according to lot or otherwise, as the Board may determine, and having regard to seniority of service among the said previous classes in arranging the order of precedence of the new series ; and the said six classes shall thereafter go out of office in rotation, and in order of precedence as thus defined, one at each successive annual meeting of the General Court, and their places be supplied by joint ballot of the Senators and Representatives."

This Act was not to go into effect until "the Board of Overseers, as heretofore constituted, and the President and Fellows of Harvard College respectively, at meetings held for that purpose during the present session of the General Court, shall by vote have assented to the same." The two Boards concurred as required.

Meanwhile an opinion was everywhere gaining ground that it would be better for the community and the interests of learning, as well as for the University, if the power to elect the Overseers were transferred from the Legislature to the graduates of the College. A bill to this effect was introduced into the Senate in 1854, which passed through most of the preliminary stages, but failed to be enacted ; partly, as it was thought at the time, from the pressure of business at the close of the session. The purpose was finally carried out in 1865, by the passage of the following "Act in relation to the Board of Overseers of Harvard College" : —

## "AN ACT

## IN RELATION TO THE BOARD OF OVERSEERS OF HARVARD COLLEGE.

"SECT. 1. — The places of the successive classes in the Board of Overseers of Harvard College, and the vacancies in such classes, shall hereafter be annually supplied by ballot of such persons as have received from the College a degree of Bachelor of Arts, or Master of Arts, or any honorary degree, voting on Commencement day in the city of Cambridge; such election to be first held in the year eighteen hundred and sixty-six; *provided, however*, that no member of the Corporation, and no officer of government or instruction in said College, shall be eligible as an Overseer, or entitled to vote in the election of Overseers; and *provided, further*, that no person who has received from said College the degree of Bachelor of Arts shall be entitled to vote for Overseers before the fifth annual election after the graduation of his class.

"SECT. 2. — The Board of Overseers shall annually appoint one principal and two or more assistant-inspectors of polls, who shall, on Commencement day, from the hour of ten in the forenoon to the hour of four in the afternoon, at some place in said city of Cambridge, fixed by said Board, receive the votes for Overseers, and they shall sort and count such votes, and make public declaration thereof, after the closing of the polls; and said inspectors shall be provided with a complete list of the persons qualified to vote at such election, and no person shall vote until the inspectors find and check his name upon such list. The names of the persons voted for, the number of votes received for each person, and the vacancy or place in said Board for which he is proposed, shall be entered in words at length, by said inspectors, upon a record kept by them for that purpose, which shall, after such election, be forthwith made up, signed, and delivered by them to the Board of Overseers. The persons who shall receive the highest number of votes for the places or vacancies in said Board shall, to the number of Overseers to be elected, be deemed and shall be declared by said Board elected to be members thereof.

"SECT. 3. — The Board of Overseers shall give notice of the place of the polls, the hours during which they are open, and the number of Overseers to be elected, by publishing the same at least ten days before Commencement day in some newspaper printed in the city of Boston.

"SECT. 4. — The terms of office of the existing classes of Overseers are extended to the close of Commencement day of the year in which such terms severally expire; the terms of office of the classes hereafter elected shall successively expire at the close of Commencement day each year in their order; and the persons elected Overseers on any Commencement day, shall supply the places of the class of Overseers which goes out of office at the close of that day, and the vacancies then existing in said Board.

"SECT. 5. — Whenever there shall be a failure on Commencement day to supply any places or vacancies in the Board of Overseers, the same may be filled by vote of the remaining Overseers; and any person elected to fill a

vacancy, shall be deemed to be a member of and to go out of office with the class to which his predecessor belonged.

"SECT. 6. — The Governor, Lieutenant-Governor, President of the Senate, Speaker of the House of Representatives, and Secretary of the Board of Education, shall not be *ex-officio* members of the Board of Overseers of Harvard College after this Act shall be in force.

"SECT. 7. — This Act shall be in force when the Board of Overseers and the President and Fellows of Harvard College respectively, at meetings held for that purpose, shall by vote have assented to the same.

"SECT. 8. — This Act shall not be construed as in the nature of a contract or a charter, but may at any time be repealed at the pleasure of the Legislature." [April 28, 1865.]

This Act, having been duly assented to by the Overseers on the 21st of September, 1865, and by the President and Fellows on the 15th of December of the same year, is now the law; and it may be regarded as evidence of the wisdom of this transfer of power to the graduates, that analogous changes have already been made in the constitution of several other colleges.

# GOVERNMENT.

## CORPORATION.

### PRESIDENT.

CHARLES WILLIAM ELIOT, LL.D.	CHOSEN	1869
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### FELLOWS.

JOHN AMORY LOWELL, LL.D.	1837
GEORGE PUTNAM, D. D.	1853
GEORGE TYLER BIGELOW, LL. D.	1868
FRANCIS BOARDMAN CROWNINSHIELD, A. M.	1861
NATHANIEL THAYER, A. M.	1868

### TREASURER.

NATHANIEL SILSBEE, A. M.	1862
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## OVERSEERS.

The PRESIDENT and TREASURER of the UNIVERSITY, *ex officio*, and the following persons by election :—

DATE OF ELECTION.	RALPH WALDO EMERSON, LL. D.
	SETH SWEETSER, D. D.
1867	FRANCIS EDWARD PARKER, LL. B.
	HENRY LEE, A. M.
	JONATHAN INGERSOLL BOWDITCH, A. M.
	EBENEZER ROCKWOOD HOAR, LL. D.
	JOHN HENRY CLIFFORD, LL. D., <i>President</i> .
1868	GEORGE OTIS SHATTUCK, LL. B.
	THEODORE LYMAN, S. B.
	SAMUEL ABBOTT GREEN, M. D.
	EDWARD EVERETT HALE, A. M.
	WILLIAM ADAMS RICHARDSON, A. M.
1869	WALDO HIGGINSON, A. M.
	CHARLES FRANCIS ADAMS, LL. D.
	WILLIAM GOODWIN RUSSELL, LL. B.



- 1870 { JAMES WALKER, D. D., LL.D.  
JOHN CODMAN ROPES, LL.B.  
MARTIN BRIMMER, A. B.  
HENRY WILLIAM PAINE, LL. D.  
PHILLIPS BROOKS, A. M.
- 1871 { STEPHEN SALISBURY, A. M.  
GEORGE STILLMAN HILLARD, LL. D.  
RICHARD HENRY DANA, LL. D.  
JAMES LAWRENCE, A. M.  
THOMAS HILL, D. D., LL.D.
- 1872 { EDWARD HAMMOND CLARKE, M. D.  
LE BARON RUSSELL, M. D.  
ALEXANDER MCKENZIE, A. M.  
DARWIN ERASTUS WARE, LL.B.  
GEORGE WASHINGTON COPP NOBLE, A. M.
- NATHANIEL BRADSTREET SHURTLEFF, M. D., *Secretary.*

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### OFFICERS OF INSTRUCTION AND GOVERNMENT.\*

- |  | RESIDENCE.†             |
|--|-------------------------|
| CHARLES WILLIAM ELIOT, LL.D., PRESIDENT,                 | 17 Quincy St.           |
| EMORY WASHBURN, LL.D., <i>Bussey Professor of</i>        |                         |
| <i>Law,</i>  | 28 Quincy St.           |
| FREDERICK HENRY HEDGE, D. D., <i>Professor</i>           |                         |
| <i>of German,</i>  | 48 North Av.            |
| JOHN BARNARD SWETT JACKSON, M. D.,                       |                         |
| <i>Shattuck Professor of Morbid Anatomy, and Cu-</i>     |                         |
| <i>urator of the Anatomical Museum,</i>                  | 89 Charles St., Boston. |
| JOHN LANGDON SIBLEY, A. M., <i>Librarian,</i>            | 9 Phillips Pl.          |
| ANDREW PRESTON PEABODY, D. D., LL. D.,                   |                         |
| <i>Preacher to the University, and Plummer Professor</i> |                         |
| <i>of Christian Morals,</i>                              | 11 Quincy St.           |
| OLIVER STEARNS, D. D., <i>Parkman Professor of</i>       |                         |
| <i>Theology, and Dean of the Divinity Faculty,</i>       | 12 Kirkland Pl.         |
| <i>Hollis Professor of Divinity.</i>                     |                         |
| LOUIS AGASSIZ, LL. D., <i>Professor of Zoölogy and</i>   |                         |
| <i>Geology,</i>  | 34 Quincy St.           |

\* Arranged, with the exception of the President, in the order of collegiate seniority.

† For Abbreviations see page 34. The residence is in Cambridge, unless otherwise stated.

- OLIVER WENDELL HOLMES, M. D., *Parkman*  
*Professor of Anatomy,* 296 Beacon St., Boston.
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*Astronomy and Mathematics,* 4 Kirkland Pl.
- ASA GRAY, LL. D., *Fisher Professor of Natural*  
*History,* Botanic Garden.
- THOMAS MOTLEY, *Instructor in Farming,* Jamaica Plain.
- GEORGE CHEYNE SHATTUCK, M. D., *Hersey*  
*Professor of the Theory and Practice of Physic,* 6 Newbury St., Boston.
- FRANCIS BOWEN, A. M., *Alford Professor of*  
*Natural Religion, Moral Philosophy, and Civil*  
*Polity,* 9 Follen St.
- JOSEPH LOVERING, A. M., *Hollis Professor of*  
*Mathematics and Natural Philosophy,* 38 Kirkland St.
- EVANGELINUS APOSTOLIDES SOPHOCLES,  
 LL. D., *University Professor of Ancient, Byzantine,*  
*and Modern Greek,* H'y 3.
- HENRY WARREN TORREY, A. M., *McLean Pro-*  
*fessor of Ancient and Modern History,* 20 Oxford St.
- JEFFRIES WYMAN, M. D., *Hersey Professor of*  
*Anatomy,* 37 Quincy St.
- HENRY JACOB BIGELOW, M. D., *Professor of*  
*Surgery,* 52 Beacon St., Boston.  
 ————, *Royall Professor of Law.*
- GEORGE DERBY, M. D., *Professor of Hygiene,* 102 Charles St., Boston.
- JOHN EUGENE TYLER, M. D., *Professor of Men-*  
*tal Diseases,* 7 Newbury St., Boston.
- HENRY LAWRENCE EUSTIS, A. M., *Professor of*  
*Engineering, and Dean of the Lawrence Scientific*  
*Faculty,* 29 Kirkland St.
- JAMES RUSSELL LOWELL, A. M., *Smith Pro-*  
*fessor of the French and Spanish Languages and*  
*Literatures, and Professor of Belles-Lettres,* Elmwood Av.
- JOSIAH DWIGHT WHITNEY, LL. D., *Sturgis*  
*Hooper Professor of Geology, and Dean of the Min-*  
*ing Faculty,* 12 Oxford St.
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*New Testament Criticism and Interpretation,* 23 Berkeley St.
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*fessor of Obstetrics and Medical Jurisprudence,* 53 Worcester St., Boston.
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- FRANCIS JAMES CHILD, PH. D., *Boylston Professor of Rhetoric and Oratory*, 67 Kirkland St.
- CALVIN ELLIS, M. D., *Jackson Professor of Clinical Medicine, and Dean of the Medical Faculty*, 114 Boylston St., Boston.
- GEORGE MARTIN LANE, PH. D., *Pope Professor of Latin*, 31 Quincy St.
- JOSEPH WINLOCK, A. M., *Director of the Observatory, and Phillips Professor of Astronomy; and Professor of Geodesy*, Observatory.
- HENRY WILLARD WILLIAMS, M. D., *Professor of Ophthalmology*, 15 Arlington St., Boston.
- THOMAS HENDERSON CHANDLER, A. M., D. M. D., *Professor of Mechanical Dentistry*, 222 Tremont St., Boston.
- JOSIAH PARSONS COOKE, A. M., *Erving Professor of Chemistry and Mineralogy*, 26 Quincy St.
- EDWARD JAMES YOUNG, A. M., *Hancock Professor of Hebrew and other Oriental Languages, and Dexter Lecturer on Biblical Literature*, Raymond St.
- CHARLES FRANKLIN DUNBAR, A. B., *Professor of Political Economy*, 14 Highland St.
- CHARLES CARROLL EVERETT, D. D., *Bussey Professor of Theology*, 53 Garden St.
- JOHN NELSON BORLAND, M. D., *Instructor in Clinical Medicine*, 229 Beacon St., Boston.
- WILLIAM WATSON GOODWIN, PH. D., *Eliot Professor of Greek Literature*, 5 Follen St.
- CHRISTOPHER COLUMBUS LANGDELL, A. M., *Dane Professor of Law, and Dean of the Law Faculty*, 127 Mt. Auburn St.
- FERDINAND BÔCHER, A. M., *Professor of Modern Languages*, 12 Holyoke Pl.
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ADAMS SHERMAN HILL, A. B., <i>Assistant Professor of Rhetoric,</i>	Brookline.
JAMES MILLS PEIRCE, A. M., <i>University Professor of Mathematics,</i>	M. 47.
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JAMES BRADSTREET GREENOUGH, A. B., <i>Tutor in Latin,</i>	22 Appian Way.
BENNETT HUBBARD NASH, A. M., <i>Assistant Professor of Italian and Spanish,</i>	62 Boylston St., Boston.
_____, <i>Professor of Topographical Engineering,</i>	
ARTHUR SEARLE, A. M., <i>Assistant in the Observatory,</i>	Observatory.
GEORGE TUFTON MOFFATT, M. D., D. M. D., <i>Professor of Operative Dentistry,</i>	Longwood.
JOHN KNOWLES PAINE, A. M., <i>Instructor in Music,</i>	8 Frisbie Pl.
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WILLIAM AUGUSTUS ROGERS, A. M., <i>Assistant in the Observatory,</i>	Observatory.
FRANCIS G. SANBORN, <i>Instructor in Entomology,</i>	Jamaica Plain.
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CHARLES JOYCE WHITE, A. M., <i>Assistant Professor of Mathematics,</i>	H. 21.
RAPHAEL PUMPELLY, <i>Professor of Mining,</i>	Boston.
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WILLIAM HENRY PETTEE, A. M., <i>Assistant Professor of Mining,</i>	17 Kirkland St.

- CHARLES BURNHAM PORTER, M. D., *Director of Anatomy*, 104 Boylston St., Boston.
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- JOHN FISKE, A. M., LL. B., *Assistant Librarian*, 4 Berkeley St.
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- NATHANIEL SOUTHGATE SHALER, S. B., *Professor of Palæontology*, 13 Bow St.
- LUTHER DIMMICK SHEPARD, D. D. S., *Adjunct Professor of Operative Dentistry*, Hotel Boylston, Boston.
- NATHANIEL WARE HAWES, *Assistant Professor of Operative Dentistry*, 175 Tremont St., Boston.
- REGINALD HEBER FITZ, M. D., *Instructor in Pathological Anatomy*, 293 Tremont St., Boston.
- GEORGE HERBERT PALMER, A. M., *Instructor in Philosophy, and Curator of the Gray Engravings*, 2 Holmes Pl.
- EDWIN PLINY SEAVER, A. M., *Assistant Professor of Mathematics*, 17 Kirkland St.
- FRANK EUSTACE ANDERSON, A. M., *Tutor in Greek*, M. 7.
- GEORGE ANTHONY HILL, A. M., *Assistant Professor of Physics, and Registrar*, H'y 20.
- JOHN TROWBRIDGE, S. B., *Assistant Professor of Physics*, 13 Sumner St.
- CHARLES LORING JACKSON, A. M., *Assistant Professor of Chemistry*, H'y 11.
- EDWARD STICKNEY WOOD, M. D., *Assistant Professor of Chemistry*, 12 Chauncey St.
- PIERRE JULIEN BORIS, *Instructor in French*, 68 Mt. Auburn St.
- JOSIAH CALEF BARTLETT, A. M., *Instructor in Mathematics*, C. 5.
- ARTHUR IRVING FISKE, A. M., *Tutor in Greek*, H'ke 6.
- HENRY BARKER HILL, A. M., *Assistant in Chemistry*, 30 Mellen St.
- HENRY HOWLAND, Ph. D., *Tutor in German*, S. 7.
- JAMES JEFFERSON MYERS, A. M., *Proctor*, Little's Block 13.
- CHARLES HERBERT MOORE, *Instructor in Free Hand Drawing and Water Colors*, 19 Oxford St.

GEORGE THEODORE DIPPOLD, <i>Instructor in German,</i>	D. 23.
WILLIAM HUNTER ORCUTT, A. M., <i>Proctor,</i>	W. 7.
JOSEPH BANGS WARNER, A. M., <i>Proctor,</i>	T. 29.
CHARLES EDWARD MUNROE, S. B., <i>Assistant in Chemistry,</i>	C. 32.
ARTHUR LORD HUNTINGTON, A. B., <i>Proctor,</i>	T. 7.
HENRY PARKMAN, A. B., <i>Proctor,</i>	M. 40.
WILLIAM WILLARD BOYD, A. B., <i>Proctor,</i>	H. 7.
SAMUEL BREARLEY, A. B., <i>Proctor,</i>	W. 36.
HENRY NATHAN WHEELER, A. B., <i>Proctor,</i>	C. 56.
ALBERT LAMB LINCOLN, A. B., <i>Proctor,</i>	S. 21.
EDWARD STEVENS SHELDON, A. B., <i>Proctor,</i>	G. 43.
JOHN FREEMAN TUFTS, A. B., <i>Proctor,</i>	T. 54.
MOSES PERKINS WHITE, A. B., <i>Proctor,</i>	G. 5.

EDWARD WILLIAM HOOPER, LL.B., <i>Steward,</i>	Brookline.
JAMES WINTHROP HARRIS, <i>Secretary,</i>	22 Winthrop St.
AMORY THOMPSON GIBBS, A. M., <i>Assistant Secretary,</i>	30 Madison St.
JAMES JENNISON, A. M., <i>Librarian of the Divinity School,</i>	20 Craigie St.
JOHN HIMES ARNOLD, <i>Librarian of the Law School,</i>	62 Trowbridge St.
JOSEPH HERBERT SENTER, A. B., <i>Assistant in the General Library,</i>	D. 22.
JOHN FREEMAN BROWN, A. B., <i>Assistant in the Physical Laboratory,</i>	G. 27.
ALFRED WITHINGTON FIELD, A. B., <i>Assistant in the Chemical Laboratory,</i>	C. 30.
WILLIAM ELDER, A. M., <i>Assistant in the Chemical Laboratory,</i>	60 Mt. Auburn St.
MARCELLO HUTCHINSON, A. B., <i>Assistant in the Laboratory of Agricultural Chemistry,</i>	Jamaica Plain.
ARTHUR GORHAM DAVIS, <i>Treasurer's Book-keeper,</i>	Boston.
FREDERIC WILLIAM LISTER, <i>Superintendent of the Gymnasium,</i>	Fresh Pond Lane.

## ANNUAL APPOINTMENTS FOR 1872-73.

## Harvard College.

GEORGE LINCOLN GOODALE, A. M., <i>Instructor in Botany, and University Lecturer on Vegetable Physiology,</i>	39 Chauncey St.
THOMAS DWIGHT, JR., M. D., <i>Instructor in Comparative Anatomy,</i>	9 Charles St., Boston.
WILLIAM JAMES, M. D., <i>Instructor in Physiology,</i>	20 Quincy St.
JAMES BARR AMES, A. M., <i>Instructor in History,</i>	H'ke 33.
ADRIEN JACQUINOT, A. B., LL. B., <i>Instructor in French,</i>	C. 12.
JOSEPH DODDRIDGE BRANNAN, A. M., <i>Instructor in Roman Law,</i>	C. 17.
JOSEPH BANGS WARNER, A. M., <i>Instructor in History,</i>	T. 29.
ALLEN WALTON GOULD, A. B., <i>Instructor in Greek,</i>	C. 25.
FRANKLIN GOODRIDGE FESSENDEN, LL. B., <i>Instructor in French,</i>	G. 24.
GEORGE ALONZO BARTLETT, <i>Instructor in German,</i>	Little's Block 5.

## Lecturers in the Law School.

GEORGE TYLER BIGELOW, LL. D., <i>on Marine Insurance,</i>	28 Commonwealth Av., Boston.
BENJAMIN ROBBINS CURTIS, LL. D., <i>on Jurisdiction, Practice, and Peculiar Jurisprudence of the Courts of the United States,</i>	21 Marlboro St., Boston.
BENJAMIN FRANKLIN THOMAS, LL. D., <i>on Wills and Administration,</i>	221 Beacon St., Boston.
CHARLES SMITH BRADLEY, LL. D., <i>on Equity,</i>	Providence, R. I.
NICHOLAS ST. JOHN GREEN, LL. B., <i>on Criminal Law and Torts,</i>	391 Harvard St.
JOHN CHIPMAN GRAY, JR., LL. B., <i>on Evidence,</i>	4 Pemberton Sq., Boston.
OLIVER WENDELL HOLMES, JR., LL. B., <i>on Jurisprudence,</i>	7 Pemberton Sq., Boston.

**Lecturers in the Medical School.**

- HENRY KEMBLE OLIVER, JR., M. D., on *Laryngoscopy*, 10 Joy St., Boston.  
 CLARENCE JOHN BLAKE, M. D., on *Otology*, Hotel Berkeley, Boston.  
 JOHN ORNE GREEN, M. D., on *Otology*, 1 Tremont Pl., Boston.  
 FRANCIS BOOTT GREENOUGH, M. D., on *Syphilis*, 17 Charles St., Boston.  
 JAMES JACKSON PUTNAM, M. D., on the *Application of Electricity in Nervous Diseases*, 24 Marlboro St., Boston.

**Lecturers in the Dental School.**

- EDWARD AUGUSTUS BOGUE, M. D., on *Dental Pathology and Therapeutics*, New York.  
 IRA ALLEN SALMON, D. D. S., on *Operative Dentistry*, 670 Tremont St., Boston.

**University Lecturers.**

- SAMUEL ELIOT, LL.D., on the *History of the XIXth Century*, 44 Brimmer St., Boston.  
 CHARLES CALLAHAN PERKINS, A. M., on the *History of Italian Art*, 2 Walnut St., Boston.  
 EDWARD SYLVESTER MORSE, PH. D., on *Branchiopoda*, Salem.  
 JOEL ASAPH ALLEN, on *Ornithology*, Divinity Avenue.



# HARVARD COLLEGE.

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## COLLEGE FACULTY.

CHARLES W. ELIOT, LL. D., *President.*  
EPHRAIM W. GURNEY, A. B., *Dean and Professor of History.*  
FREDERIC H. HEDGE, D. D., *Professor of German.*  
ANDREW P. PEABODY, D. D., LL. D., *Professor of Christian Morals.*  
BENJAMIN PEIRCE, LL. D., *Professor of Mathematics.*  
FRANCIS BOWEN, A. M., *Professor of Philosophy.*  
JOSEPH LOVERING, A. M., *Professor of Natural Philosophy.*  
HENRY W. TORREY, A. M., *Professor of History.*  
EVANGELINUS A. SOPHOCLES, LL. D., *Professor of Greek.*  
JAMES R. LOWELL, A. M., *Professor of Belles-Lettres.*  
FRANCIS J. CHILD, PH. D., *Professor of Rhetoric.*  
GEORGE M. LANE, PH. D., *Professor of Latin.*  
JOSIAH P. COOKE, A. M., *Professor of Chemistry and Mineralogy.*  
CHARLES F. DUNBAR, A. B., *Professor of Political Economy.*  
WILLIAM W. GOODWIN, PH. D., *Professor of Greek.*  
FERDINAND BÔCHER, A. M., *Professor of Modern Languages.*  
ADAMS SHERMAN HILL, A. M., *Assistant Professor of Rhetoric.*  
JAMES M. PEIRCE, A. M., *Professor of Mathematics.*  
JAMES B. GREENOUGH, A. B., *Tutor in Latin.*  
HENRY ADAMS, A. B., *Assistant Professor of History.*  
WILLIAM EVERETT, A. M., *Tutor in Latin.*  
CHARLES J. WHITE, A. M., *Assistant Professor of Mathematics.*  
CLEMENT L. SMITH, A. M., *Tutor in Latin.*  
GEORGE H. PALMER, A. M., *Instructor in Philosophy.*  
EDWIN P. SEAVER, A. M., *Assistant Professor of Mathematics.*  
FRANK E. ANDERSON, A. M., *Tutor in Greek.*  
GEORGE A. HILL, A. M., *Registrar and Assistant Professor of Physics.*  
JOHN TROWBRIDGE, S. B., *Assistant Professor of Physics.*  
CHARLES L. JACKSON, A. M., *Assistant Professor of Chemistry.*  
JAMES B. AMES, A. M., *Instructor in History.*  
JOSEPH D. BRANNAN, A. M., *Instructor in Roman Law.*  
ARTHUR I. FISKE, A. M., *Tutor in Greek.*  
HENRY HOWLAND, PH. D., *Tutor in German.*

## PARIETAL COMMITTEE.

GEORGE A. HILL, A. M., <i>Chairman</i> ,	H'y 20.
EVANGELINUS A. SOPHOCLES, LL. D.,	H'y 3.
CHARLES J. WHITE, A. M.,	H. 21.
FRANK E. ANDERSON, A. M.,	M. 7.
CHARLES L. JACKSON, A. M.,	H'y 11.
JAMES B. AMES, A. M.,	H'ke 33.
JOSIAH C. BARTLETT, A. M.,	C. 5.
JOSEPH D. BRANNAN, A. M.,	C. 17.
ARTHUR I. FISKE, A. M.,	H'ke 6.
HENRY HOWLAND, Ph. D.	S. 7.
JAMES J. MYERS, A. M.,	Little's Block 13.
WILLIAM H. ORCUTT, A. M.,	W. 7.
JOSEPH B. WARNER, A. M.,	T. 29.
ARTHUR L. HUNTINGTON, A. B.,	T. 7.
HENRY PARKMAN, A. B.,	M. 40.
WILLIAM W. BOYD, A. B.,	H. 7.
SAMUEL BREARLEY, A. B.,	W. 36.
HENRY N. WHEELER, A. B.,	C. 56.
ALBERT L. LINCOLN, A. B.,	S. 21.
EDWARD S. SHELDON, A. B.,	G. 43.
JOHN F. TUFTS, A. B.,	T. 54.
MOSES P. WHITE, A. B.,	G. 5.
FRANKLIN G. FESSENDEN, LL. B.,	G. 24.
GEORGE A. BARTLETT,	Little's Block 5.

### **ABBREVIATIONS.**

<b>C.</b>	<b>College House.</b>	<b>H'y.</b>	<b>Holworthy Hall.</b>
<b>D.</b>	<b>Divinity Hall.</b>	<b>M.</b>	<b>Matthews Hall.</b>
<b>G.</b>	<b>Grays Hall.</b>	<b>S.</b>	<b>Stoughton Hall.</b>
<b>H.</b>	<b>Hollis Hall.</b>	<b>T.</b>	<b>Thayer Hall.</b>
<b>H'ke.</b>	<b>Holyoke House.</b>	<b>W.</b>	<b>Weld Hall.</b>

# UNDERGRADUATES.

## SENIOR CLASS.

NAME.	RESIDENCE.	ROOM.
Abbott, Calvin Edward,	<i>Brighton,</i>	M. 3.
Adams, Charles Day,	<i>Uxbridge,</i>	M. 3.
Allen, Lowell Douglass,	<i>Boston,</i>	25 Holyoke St.
Angell, Elgin Adelbert,	<i>Forestville, N. Y.,</i>	H'y 1.
Ayer, Frederick Fanning,	<i>Lowell,</i>	G. 26.
Babcock, Lemuel Hollingsworth,	<i>Milton,</i>	T. 56.
Baldwin, Thomas Williams,	<i>Bangor, Me.,</i>	H. 29.
Barker, William Torrey,	<i>South Hanson,</i>	H. 26.
Batchelder, Charles Edwin,	<i>North Hampton, N. H.,</i>	S. 23.
Beatley, James Augustus,	<i>Chelsea,</i>	Chelsea.
Bell, William Appleton,	<i>Boston,</i>	T. 9.
Bettens, Edward Detraz,	<i>Cincinnati, O.,</i>	H. 11.
Bigelow, Frank Hagar,	<i>Concord,</i>	C. 44.
Bliss, Edward Penniman,	<i>Cambridgeport,</i>	H. 6.
Brown, John Coffin Jones,	<i>Boston,</i>	C. 16.
Bryant, John,	<i>Boston,</i>	Little's Block 4.
Burgwyn, Collinson Pierrepont	<i>Edwards, Richmond, Va.,</i>	T. 58.
Burnett, Harry,	<i>Southboro',</i>	T. 26.
Button, Charles Pearson,	<i>Milwaukee, Wis.,</i>	Dolton's Block 1.
Cheney, William Franklin,	<i>Lowell,</i>	M. 26.
Church, Alfred Gaylord,	<i>Meadville, Pa.,</i>	Dolton's Block 1.
Copeland, Frederic Herbert,	<i>Stoneham,</i>	25 Sacramento St.
Cram, Harry Spencer,	<i>New York, N. Y.,</i>	Little's Block 8.
Croswell, James Greenleaf,	<i>Cambridge,</i>	G. 22.
Daland, Tucker,	<i>Boston,</i>	T. 48.
Dayton, Robert Alex. Barnard,	<i>New York, N. Y.,</i>	Dolton's Block 6.
Dickey, Robert,	<i>Newport, R. I.,</i>	Little's Block 6.
Dodge, Edward Sherman,	<i>Cambridge,</i>	72 Sparks St.
Dodge, Joshua Cleaves,	<i>Boston,</i>	Little's Block 4.
Dowse, William Bradford Homer,	<i>Sherborn,</i>	T. 27.
Eaton, William Lorenzo,	<i>Woburn,</i>	G. 11.
Estabrooks, John Albert,	<i>Dorchester,</i>	G. 12.
Everett, Oliver Hurd,	<i>Cambridge,</i>	T. 55.

Fincke, Frederick Getman,	Brooklyn, N. Y.,	G. 51.
Fisk, Lyman Beecher,	Charlestown,	C. 19.
Fogg, William John Gordon,	Boston,	Dolton's Block 3.
Forster, Frederick Prentiss,	Charlestown,	T. 55.
Foster, Alfred Dwight,	Boston,	T. 23.
Foster, Frank Hugh,	Springfield,	C. 45.
French, Samuel William,	Boston,	T. 40.
Garland, Joseph Everett,	Gloucester,	4 Holyoke St.
Gavin, Frank Edwin,	Greensburg, Ind.,	25 Holyoke St.
Goodrich, Charles Newton,	Cambridgeport,	H. 6.
Goodwin, John Cheever,	Boston,	G. 37.
Grant, Robert,	Boston,	H'y 5.
Groton, William Mansfield,	East Boston,	T. 20.
Gunn, Elisha,	Springfield,	H'y 9.
Ham, Charles Abner,	East Cambridge,	S. 27.
Haynes, Henry Harrison,	Tilton, N. H.,	M. 26.
Hill, Walter Clinton,	Stoneham,	68 Mt. Auburn St.
Howe, Octavius Thorndike,	Cambridge,	17 Mt. Auburn St.
Hubbard, Frank Allen,	Taunton,	H. 8.
Hubbard, Henry Guernsey,	Detroit, Mich.,	G. 15.
Ingalls, Edmond Cunningham,	Blooming Grove, N. Y.,	H. 16.
Jackson, James Frederick,	Taunton,	H. 8.
Johnson, George Henry,	Cambridge,	125 Mt. Auburn St.
Johnson, John Warren,	Woburn,	M. 27.
Jones, Frederic Prince,	Portsmouth, N. H.,	Little's Block 6.
Kebler, Frederic,	Cincinnati, O.,	25 Holyoke St.
Kelley, Clarence Erskine,	Haverhill,	H'y 8.
Kilby, Henry Sherman,	Boston Highlands,	H. 13.
Kingsbury, Willis Albert,	Holliston,	C. 41.
Laughlin, James Laurence,	Alliance, O.,	M. 29.
Lawton, William Cranston,	New Bedford,	C. 37.
Lewis, Isaac Newton,	Walpole,	C. 36.
Lexow, Charles King,	New York, N. Y.,	100 Mt. Auburn St.
Lincoln, James Otis,	Brookline,	M. 29.
Lloyd, William James,	Pottsville, Pa.,	C. 22.
Locke, Arthur Herbert,	Augusta, Me.,	
Lord, Eliot,	Plymouth,	H. 28.
Lyman, George Hinckley,	Boston,	9 Linden St.
Lyman, Joseph,	Brooklyn, N. Y.,	H'ke 32.
Martin, Austin Agnew,	Boston Highlands,	25 Holyoke St.
Miller, Thomas Scott,	Jackson, La.,	C. 59.
Miller, Winthrop,	Dorchester,	H. 31.

Moore, Charles Sturtevant,	Cambridge,	C. 1.
Moore, Clarence Bloomfield,	Philadelphia, Pa.,	25 Holyoke St.
Morison, Samuel Lord,	Portsmouth, N. H.,	G. 6.
Murdoch, John,	Boston Highlands,	G. 45.
Nason, Rufus William,	Somersworth, N. H.,	W. 53.
Nelson, Edward Beverly,	Poughkeepsie, N. Y.,	Dolton's Block 11.
Olmstead, James Monroe,	Boston,	T. 5.
Ordway, Herbert Ingersoll,	Bradford,	H'y 8.
Osborne, Louis Shreve,	Salem,	H. 9.
Otis, Charles Harrison,	North Easton,	H'y 1.
Paul, Joseph Frank,	Boston,	Dolton's Block 9.
Pendery, Henry Rockey,	Leavenworth, Kan.,	Dolton's Block 11.
Pevey, Gilbert Abiel Abbott,	Portland, Me.,	H. 29.
Pickman, Dudley Leavitt,	Boston,	Dolton's Block 5.
Pitkin, Charles Alfred,	Syracuse, N. Y.,	H. 13.
Pratt, Edward Read,	Worcester,	T. 35.
Prichard, Joseph Vila,	Boston,	H'ke 29.
Prince, Charles Albert,	Boston,	T. 58.
Purrington, William Archer,	Washington, D. C.,	H. 30.
Rand, Elbridge Dwight,	Burlington, Iowa,	36 North Avenue.
Raymond, Walter,	Cambridgeport,	H. 26.
Redfield, Luther Clark,	Charlestown,	T. 40.
Richardson, Ambrose Crosby,	Boston,	S. 5.
Richardson, Maurice Howe,	Fitchburg,	G. 28.
Russell, Charles Theodore,	Cambridge,	69 Sparks St.
Shaw, John Oakes,	Boston,	T. 5.
Sheahan, Joseph Maurice,	Quincy,	C. 55.
Shepley, Francis Baxter,	Fitchburg,	G. 28.
Shorey, George Langdon,	Lynn,	40 Mt. Auburn St.
Simmons, John Franklin,	Hanover,	S. 8.
Snow, Freeman,	Palmyra, N. Y.,	S. 8.
Stackpole, Frederick Dabney,	Cincinnati, O.,	H. 11.
Stone, Henry Baldwin,	New Bedford,	H'y 18.
Story, Frederick Washington,	Somerville,	Somerville.
Swaim, Joseph Skinner,	Cambridge,	16 Craigie St.
Swett, Melville Howard,	Wellfleet,	T. 20.
Swift, Thomas Nye,	New Bedford,	H'y 18.
Tarbell, Charles Francis,	Lincoln,	T. 9.
Thomas, William,	Boston,	H'y 21.
Thompson, Albert Harris,	Boston,	H'y 21.
Townsend, Frederic Bacon,	Washington, D. C.,	C. 21.
Usher, Edward Preston,	Lynn,	S. 5.

Walbach, George Gorham,	<i>Boston,</i>	T. 56.
Walker, Grant,	<i>Boston,</i>	H'y 5.
Ware, Arthur Lovell,	<i>Boston,</i>	G. 39.
Warren, Thomas Barnes,	<i>Springfield,</i>	H'y 9.
Washburn, Alfred Foster,	<i>Cambridge,</i>	G. 22.
Watson, Thomas Russell,	<i>Plymouth,</i>	H. 28.
Wharton, Edward Robbins,	<i>Boston,</i>	9 Linden St.
Wheelock, George Rogers,	<i>Boston Highlands,</i>	H. 9.
White, Horatio Stevens,	<i>Syracuse, N. Y.,</i>	G. 46.
Whittemore, Henry,	<i>New York, N. Y.,</i>	T. 26.
Wildes, George Dudley,	<i>Ipswich,</i>	S. 23.
Williams, David Weld,	<i>Boston Highlands,</i>	G. 7.
Wilson, Robert Wheeler,	<i>Salem,</i>	T. 27.
Young, Ernest,	<i>Cambridge,</i>	C. 1.

## JUNIOR CLASS.

NAME.	RESIDENCE.	ROOM.
Abbot, James Lloyd,	<i>New York, N. Y.,</i>	H'y 6.
Abbot, William Fitzhale,	<i>Cambridge,</i>	M. 55.
Allen, Richard Minot,	<i>Cambridge,</i>	5 Garden St.
Aston, Eugene Nelson,	<i>Springfield,</i>	S. 11.
Babcock, Francis Eaton,	<i>Boston,</i>	H'ke 15.
Baker, Walter,	<i>Dorchester,</i>	M. 30.
Bancroft, Charles Parker,	<i>Concord, N. H.,</i>	434 Harvard St.
Barrett, Harry Hudson,	<i>Malden,</i>	H'y 23.
Belmont, August,	<i>New York, N. Y.,</i>	H'ke 35.
Bendelari, Giorgio Anacleto Corrado,	<i>Greenwich, Ct.,</i>	H. 23.
Bettens, Thomas Simms,	<i>Cincinnati, O.,</i>	H. 12.
Blair, Woodbury,	<i>Washington, D. C.,</i>	10 Holyoke St.
Blaney, George Andrew,	<i>Woburn,</i>	M. 13.
Brainerd, Erastus,	<i>Middletown, Ct.,</i>	H'y 2.
Brannan, John Winters,	<i>Cincinnati, O.,</i>	T. 62.
Briggs, George Russell,	<i>Cambridge,</i>	61 Kirkland St.
Brinsmade, John Chapin,	<i>Springfield,</i>	H. 15.
Browne, Alexander Porter,	<i>Boston,</i>	H'ke 16.
Buffum, Charles Thomas,	<i>Brooklyn, N. Y.,</i>	W. 47.
Burdett, Henry Morgan,	<i>New York, N. Y.,</i>	T. 32.
Burnham, William Appleton,	<i>Boston,</i>	48 Brattle St.
Burry, William,	<i>Montreal, Canada,</i>	G. 21.
Cabot, James Jackson,	<i>Boston,</i>	H'y 17.

Cary, Thomas,	Buffalo, N. Y.,	H'ke 1.
Cate, Edward Warren,	Newton,	C. 39.
Cate, George Herbert,	Wolboro', N. H.,	C. 39.
Chisholm, Henry,	Cleveland, O.,	T. 22.
Clapp, Arthur Blake,	Cambridge,	S. 15.
Clark, Henry Alden,	Erie, Pa.,	S. 22.
Clark, Louis Crawford,	New York, N. Y.,	H'ke 14.
Clarke, Charles Cecil,	East Cambridge,	H. 5.
Clarke, Samuel Belcher,	Chicopee Falls,	S. 11.
Clifford, Arthur,	New Bedford,	H'ke 14.
Coale, George Oliver George,	Boston,	M. 57.
Collins, Frederic Kelley,	Cleveland, O.,	G. 18.
Corlies, Thomas,	Brooklyn, N. Y.,	H'ke 44.
Crocker, Henry Horace,	New York, N. Y.,	H'y 19.
Cunningham, Frederic,	Boston,	H'ke 30.
Cutter, Frederick Spaulding,	Cambridgeport,	H. 5.
Dana, Paul,	New York, N. Y.,	H'y 13.
Dana, Richard Henry,	Boston,	H'y 13.
Devens, Arthur Lithgow,	Cambridge,	T. 57.
Ditson, James Edward,	Boston,	H'ke 15.
Dole, Nathan Haskell,	Norridgewock, Me.,	M. 59.
Dorr, George Bucknam,	Boston,	H'ke 18.
Dwight, James,	Boston,	H'ke 16.
Dyer, Louis,	Chicago, Ill.,	104 Mt. Auburn St.
Eliot, William Samuel,	Boston,	H'ke 30.
Elliot, John Wheelock,	Keene, N. H.,	H'y 7.
Elwood, Frank Worcester,	Rochester, N. Y.,	Little's Block 1.
Farlow, John Woodford,	Newton,	T. 62.
Faulkner, Francis Child,	Keene, N. H.,	S. 24.
Fenollosa, Ernest Francisco,	Salem,	G. 36.
Ferris, Edward Mortimer,	Brookline,	G. 47.
Fessenden, George Russell,	Beaver Falls, Pa.,	H'ke 34.
Flagg, Bernard Whitman,	Cambridge,	20 Dunster St.
Flanders, Frank Byron,	Lawrence,	W. 27.
Foote, Arthur William,	Salem,	G. 49.
Forster, Horace Waldo,	Charlestown,	T. 21.
Gannett, William Whitworth,	Cambridge,	3 Dana St.
Goodrich, Arthur Lewis,	West Auburn, Me.,	C. 53.
Goodwin, Wendell,	Jamaica Plain,	H'y 15.
Grant, Henry Rice,	Boston,	W. 41.
Grant, Ulysses Simpson,	Washington, D. C.,	
Green, Charles Montraville,	Medford,	S. 25.



Harding, Herbert Lee,	<i>Boston,</i>	H'y 4.
Haven, George Irwin,	<i>Cincinnati, O.,</i>	M. 13.
Haynie, William Duff,	<i>Normal, Ill.,</i>	G. 21.
Higginson, Edward,	<i>Cambridge,</i>	H. 32.
Hill, Edward Bruce,	<i>Worcester,</i>	G. 9.
Hodges, Amory Glazier,	<i>Boston Highlands,</i>	H'y 6.
Hodges, Nathaniel Dana Carlile,	<i>Salem,</i>	W. 34.
Hopkins, Adoniram Judson,	<i>East Boston,</i>	M. 28.
Hunt, William David,	<i>Boston,</i>	G. 39.
Ivy, Jesse C,	<i>Gainesville, Ala.,</i>	C. 59.
Jones, Walter Ingersoll,	<i>Portsmouth, N. H.,</i>	H'ke 4.
Keith, Arthur Monroe,	<i>Boston Highlands,</i>	H. 27.
Knowles, Charles Franklin,	<i>Boston,</i>	T. 39.
Lawrence, James,	<i>Boston,</i>	9 Linden St.
Lawton, Frederick,	<i>Lowell,</i>	H. 15.
Leland, William Sherman,	<i>Boston Highlands,</i>	W. 52.
Leonard, Joel Marvin,	<i>East Cambridge,</i>	G. 23.
Lombard, Frederic Howard,	<i>Boston,</i>	H'y 16.
Lowell, James Duane,	<i>Southboro',</i>	
Lull, Herbert Warren,	<i>Manchester, N. H.,</i>	H. 12.
Lyman, Frank,	<i>Brooklyn, N. Y.,</i>	H'y 24.
McCann, Michael John,	<i>New York, N. Y.,</i>	C. 55.
McGrew, Gifford Horace Greeley,	<i>Dublin, Ind.,</i>	C. 15.
Mackintosh, Charles Austin,	<i>West Roxbury,</i>	M. 10.
McMillan, William Gordon,	<i>Cleveland, O.,</i>	H'y 4.
Marston, William Staples,	<i>Saco, Me.,</i>	M. 35.
Mason, William Castein,	<i>Bangor, Me.,</i>	H. 22.
Merriam, Edwin Garrald,	<i>Laurenec,</i>	W. 27.
Merrill, George Frank,	<i>Newport, Me.,</i>	C. 66.
Merrill, Henry Ferdinand,	<i>Cambridge,</i>	S. 15.
Merwin, Henry Childs,	<i>Boston,</i>	G. 48.
Mills, Ethelbert Smith,	<i>Brooklyn, N. Y.,</i>	T. 50.
Minot, James Jackson,	<i>West Roxbury,</i>	T. 60.
Mitchell, Eugene Usher,	<i>Newfield, Me.,</i>	T. 33.
Morse, Henry Lee,	<i>Boston,</i>	H'y 17.
Morse, Hosea Ballou,	<i>Medford,</i>	H. 23.
Morse, William Lambert,	<i>Marlboro',</i>	T. 24.
Moses, Theodore William,	<i>Exeter, N. H.,</i>	T. 38.
Mudge, Henry Sanford,	<i>Boston,</i>	
Newton, Richard Cole,	<i>So. Orange, N. J.,</i>	C. 43.
Nichols, William Ichabod,	<i>Saco, Me.,</i>	S. 26.
Parsons, John,	<i>Saugus,</i>	T. 52.

Penhallow, Charles Sherburne,	<i>Boston,</i>	T. 49.
Perkins, William May,	<i>Cambridge,</i>	34 Hancock St.
Perrin, Marshall Livingston,	<i>Grantville,</i>	M. 59.
Peters, Edward Gould,	<i>Boston,</i>	Little's Block 2.
Pickering, Arthur Howard,	<i>Boston,</i>	H'ke 25.
Piper, William Taggard,	<i>Cambridge,</i>	22 Concord Av.
Primer, Sylvester,	<i>Le Roy, N. Y.,</i>	C. 53.
Randall, Frank Eldridge,	<i>Boston,</i>	T. 52.
Reed, Nicholas,	<i>Cleveland, O.,</i>	G. 18.
Richards, Huntington,	<i>Geneva, N. Y.,</i>	G. 14.
Richards, William Reuben,	<i>Boston,</i>	T. 53.
Richardson, George Carr,	<i>Boston,</i>	T. 21.
Richmond, William,	<i>Washington, D. C.,</i>	C. 27.
Riddle, George,	<i>Charlestown,</i>	H'ke 31.
Rives, Arthur Landon,	<i>Boston,</i>	H'ke 17.
Roberts, Henry Bellows,	<i>Everett,</i>	H'ke 25.
Sampson, Calvin Proctor,	<i>Charlestown,</i>	T. 59.
Sanger, George Partridge,	<i>Cambridge,</i>	T. 57.
Sanger, William Cary,	<i>Brooklyn, N. Y.,</i>	H'y 24.
Savage, Charles Wesley,	<i>Derry, N. H.,</i>	C. 68.
Sawyer, Robert William,	<i>Bangor, Me.,</i>	T. 33.
Sears, David,	<i>Boston,</i>	H'ke 21.
Sears, Edmund Hamilton,	<i>Weston,</i>	S. 25.
Sewall, Theodore Lovett,	<i>St. Paul, Minn.,</i>	C. 67.
Shepard, George Clarence,	<i>Dorchester,</i>	C. 57, 58.
Silsbee, George Saltonstall,	<i>Salem,</i>	W. 40.
Simmons, Edward Emerson,	<i>Milton,</i>	H'y 19.
Southworth, Robert Alexander,	<i>Charlestown,</i>	H. 10.
Spinney, William Franklin,	<i>Salem,</i>	C. 35.
Stone, Charles Wellington,	<i>Templeton,</i>	M. 55.
Stone, Edwin Palmer,	<i>Boston,</i>	T. 39.
Stone, Frederick Joseph,	<i>New York, N. Y.,</i>	H'ke 11.
Straus, Henry,	<i>Baltimore, Md.,</i>	H'ke 34.
Swift, Frederick,	<i>New Bedford,</i>	T. 61.
Thomas, Archibald Dick,	<i>Media, Pa.,</i>	G. 41.
Tuckerman, Charles Sanders,	<i>Salem,</i>	T. 61.
Tyler, Columbus Tyler,	<i>Boston,</i>	T. 49.
Tyler, Harry Blake,	<i>Philadelphia, Pa.,</i>	H'ke 13.
Tyler, William Royall,	<i>Brookline,</i>	Holmes House.
Vaile, Frederick Ozni,	<i>Springfield,</i>	C. 69.
Van Nest, George Willett,	<i>New York, N. Y.,</i>	T. 45.
Walker, Edward Wood,	<i>Cincinnati, O.,</i>	

Warner, William Pearson,	<i>Cambridge,</i>	H'y 15.
Wellington, Edward Winslow,	<i>Boston,</i>	H. 22.
Wendell, Frank Thaxter,	<i>Jamaica Plain,</i>	H'ke 4.
Wheeler, William Asa,	<i>Portland, Me.,</i>	T. 65.
White, George Warner,	<i>Charlestown,</i>	H. 10.
Whitehouse, Edward Lawrence,	<i>Augusta, Me.,</i>	H. 27.
Wigglesworth, George,	<i>Boston,</i>	H'y 16.
Williams, Henry Houghton,	<i>Worcester,</i>	H'ke 39.
Withington, Charles Francis,	<i>Brookline,</i>	Brookline.
Withington, David Little,	<i>Newburyport,</i>	C. 57, 58.
Woodward, Samuel Bayard,	<i>Worcester,</i>	G. 9.
{ Wyman, John Palmer,	<i>Arlington,</i>	H. 24.
{ Wyman, Samuel Edwin,	<i>Arlington,</i>	H. 24.

## SOPHOMORE CLASS.

NAME.	RESIDENCE.	ROOM.
Alger, Alpheus Brown,	<i>Cambridge,</i>	H'y 22.
Almy, Clarence,	<i>New Bedford,</i>	G. 2.
Annan, William Howard,	<i>Baltimore, Md.,</i>	M. 45.
Appleton, Francis Randall,	<i>New York, N. Y.,</i>	T. 47.
Appleton, George Swett,	<i>New York, N. Y.,</i>	H'ke 5.
Appleton, John Henry,	<i>Cambridge,</i>	67 Dana St.
Atkinson, William Herbert,	<i>Cambridge,</i>	10 Appian Way.
Bacon, Gorham,	<i>New York, N. Y.,</i>	W. 8.
Bacon, Jonas Edward,	<i>Woburn,</i>	C. 3.
Baldwin, Edward David,	<i>Le Roy, N. Y.,</i>	C. 46.
Barrington, Arthur Henry,	<i>Woburn,</i>	C. 3.
Barstow, Charles Fanning,	<i>Boston,</i>	410 Harvard St.
Bartlett, Frederick Carew Smythe,	<i>New Bedford,</i>	M. 49.
Baxter, Joseph Nickerson,	<i>Boston,</i>	M. 48.
Benton, Edward Raymond,	<i>Brookline,</i>	G. 50.
Bird, George Hiram,	<i>Somerville,</i>	Somerville.
Bowditch, Vincent Yardley,	<i>Boston,</i>	W. 30.
Briggs, Daniel Gallup,	<i>Providence, R. I.,</i>	21 Hancock St.
Briggs, LeBaron Russell,	<i>Cambridge,</i>	61 Kirkland St.
Broughton, Henry White,	<i>Jamaica Plain,</i>	S. 28.
Brown, George Willard,	<i>Lowell,</i>	C. 29.
Browne, Henry Glover,	<i>Columbus, Ga.,</i>	H'ke 5.
Buck, Henry Hall,	<i>Boston,</i>	T. 41.
Bullard, William Norton,	<i>Boston,</i>	T. 34.

Burgess, Sydney Williams,	<i>Boston,</i>	16 Dunster St.
Burnett, Waldo,	<i>Southboro',</i>	W. 3.
Butler, Paul,	<i>Lowell,</i>	H'y 22.
Campbell, William Taylor,	<i>Boston,</i>	26 Mt. Auburn St.
Canfield, George Folger,	<i>New York, N. Y.,</i>	M. 14.
Carney, Edwin LeRoy,	<i>Leavenworth, Kan.,</i>	W. 42.
Carter, Frank,	<i>North Woburn,</i>	C. 9.
Clark, Lester Williams,	<i>New York, N. Y.,</i>	M. 37.
Coffin, Charles Winthrop,	<i>West Roxbury,</i>	G. 34.
Colesworthy, William Gibson,	<i>Chelsea,</i>	H'ke 23.
Comee, Frederic Robbins,	<i>Cambridge,</i>	10 Trowbridge St.
Craig, John Woodworth,	<i>No. Easton, N. Y.,</i>	W. 28.
Croswell, Simon Greenleaf,	<i>Cambridge,</i>	19 Ash St.
Crowell, Henry Ellsworth,	<i>Boston,</i>	T. 6.
Curtis, Benjamin Robbins,	<i>Boston,</i>	W. 10.
Cutler, Walter Salisbury,	<i>Albany, N. Y.,</i>	M. 46.
Dana, James,	<i>Charlestown,</i>	M. 25.
Draper, John Brazier,	<i>Cambridge,</i>	21 Craigie St.
Dumaresq, Frank,	<i>Boston,</i>	W. 43.
Dyer, Charles Henry,	<i>Hyde Park,</i>	G. 35.
Earle, Edward,	<i>Worcester,</i>	T. 11.
Ellet, William Daniel,	<i>Norwood, Va.,</i>	60 Mt. Auburn St.
Elliot, Edward Pearson,	<i>Somerville,</i>	Somerville.
Ellis, Arthur Blake,	<i>Boston,</i>	M. 5.
Emerson, Ellius Albert,	<i>Haverhill,</i>	S. 9.
Emerson, William Carroll,	<i>Haverhill,</i>	S. 9.
Faucon, Gorham Palfrey,	<i>Milton,</i>	64 Mt. Auburn St.
Felton, Thomas Cary,	<i>Cambridge,</i>	W. 43.
Fenollosa, William Silsbee,	<i>Salem,</i>	G. 36.
Fewkes, Jesse Walter,	<i>Newton,</i>	C. 50.
Fish, Frederick Perry,	<i>Taunton,</i>	M. 49.
Fiske, Andrew,	<i>Weston,</i>	M. 42.
Flint, Albert Stowell,	<i>Salem,</i>	C. 33.
Foster, William Russell,	<i>Portsmouth, N. H.,</i>	H. 25.
Foulkes, Franklin Pierce,	<i>Toledo, O.,</i>	W. 5.
Frothingham, Nathaniel Langdon,	<i>Boston,</i>	M. 42.
Gaff, James Wade,	<i>Cincinnati, O.,</i>	H'y 12.
Gammans, George Gordon,	<i>Newton Centre,</i>	C. 52.
Gerrish, Frank Scott,	<i>Portland, Me.,</i>	G. 13.
Gould, Frederic Saltonstall,	<i>New York, N. Y.,</i>	Little's Block 14.
Gray, Reginald,	<i>Boston,</i>	T. 34.
Griswold, William McCrillis,	<i>Bangor, Me.,</i>	T. 42.

Ham, Frederick Joseph,	<i>Boston Highlands,</i>	H'y 10.
Hancox, Albert Swan,	<i>Springfield,</i>	W. 28.
Harris, John Franklin,	<i>Boston,</i>	W. 2.
Hart, Nathaniel Stow,	<i>Boston Highlands,</i>	T. 6.
Hartwell, Walker,	<i>Cincinnati, O.,</i>	H'y 12.
Hastings, Edmund Trowbridge,	<i>Medford,</i>	M. 8.
Hemenway, Augustus,	<i>Boston,</i>	W. 10.
Hobart, Edward Ellis,	<i>Bridgewater,</i>	W. 25.
Hobart, George Burnap,	<i>East Bridgewater,</i>	M. 44.
Hodge, James Albert,	<i>Springfield,</i>	M. 60.
Holman, William Henry,	<i>Newton,</i>	T. 51.
Hooper, Franklin William,	<i>Walpole, N. H.,</i>	W. 24.
Hooper, Sewall Henry,	<i>Boston,</i>	M. 2.
Hunnewell, Henry Sargent,	<i>Boston,</i>	W. 17.
Huntington, James Otis Sargent,	<i>Hadley,</i>	G. 48.
Jeffries, William Augustus,	<i>Boston,</i>	16 Winthrop St.
Jeffries, Walter Lloyd,	<i>Boston,</i>	16 Winthrop St.
Johnson, Charles Rensselaer,	<i>Worcester,</i>	39 Brattle St.
Josephs, Lyman Colt,	<i>New Orleans, La.,</i>	H'ke 22.
Judson, Charles Ralph,	<i>Oswego, N. Y.,</i>	M. 44.
Kent, John Fuller,	<i>West Newton,</i>	C. 11.
Kidner, Reuben,	<i>Boston,</i>	S. 28.
Kileski, Louis Henry,	<i>Lowell,</i>	S. 14.
Kimball, Wallace Lowe,	<i>Bradford,</i>	T. 17.
Kimball, William Frederick,	<i>Chelsea,</i>	H'ke 23.
King, Edward Augustus,	<i>Newport, R. I.,</i>	28 Garden St.
King, Frederick Gore,	<i>New York, N. Y.,</i>	Little's Block 20.
King, James Gedney,	<i>Salem,</i>	G. 8.
Kingsbury, Edward Martin,	<i>Grafton,</i>	C. 47.
Kingsbury, Herbert Dix,	<i>Grantville,</i>	S. 10.
Lane, John Chapin,	<i>Boston,</i>	10 Appian Way.
Lawrence, Abbott,	<i>Boston,</i>	9 Linden St.
Lighthipe, Charles Francis,	<i>Orange, N. J.,</i>	H'ke 7.
Livermore, Joseph Perkins,	<i>Cambridge,</i>	24 North Av.
Lord, Charles Chandler,	<i>Boston,</i>	C. 50.
Lowery, Woodbury,	<i>New York, N. Y.,</i>	42 Brattle St.
Matthews, Nathan,	<i>Boston,</i>	M. 41.
Melville, William Harlow,	<i>Boston,</i>	C. 47.
Milton, Henry Slade,	<i>Weston,</i>	M. 48.
Mitchell, Clifford,	<i>Chicago, Ill.,</i>	W. 15.
Monks, George Howard,	<i>Boston,</i>	M. 37.
Montague, Richard,	<i>Westborough,</i>	C. 49.

Myrick, Orin Darius,	<i>Dorchester,</i>	H'y 10.
Norcross, Grenville Howland,	<i>Boston,</i>	10 Appian Way.
O'Callaghan, James Sullivan,	<i>Milford,</i>	S. 6.
Osgood, Edmund Quincy Sewall,	<i>Cohasset,</i>	C. 67.
Parsons, William Henry,	<i>Cambridge,</i>	373 Harvard St.
Pease, Theodore Claudius,	<i>Somers, Ct.,</i>	M. 60.
Perry, Edward Miles,	<i>New Bedford,</i>	G. 10.
Phelps, William Bigelow,	<i>Boston,</i>	G. 1.
Plimpton, Lewis Henry,	<i>Walpole,</i>	C. 48.
Plummer, Charles Warner,	<i>New Bedford,</i>	H'y 14.
Porter, William Lawrence,	<i>New York, N. Y.,</i>	W. 2.
Post, Morgan Gibbes,	<i>New York, N. Y.,</i>	H'ke 9.
Poultney, Evan,	<i>Baltimore, Md.,</i>	H'ke 28.
Preble, Henry,	<i>Portland, Me.,</i>	62 Brattle St.
Preble, William Pitt,	<i>Portland, Me.,</i>	62 Brattle St.
Prince, Morton Henry,	<i>Boston,</i>	M. 5.
Ranney, John Rufus,	<i>Cleveland, O.,</i>	H'y 7.
Raymond, Manley Amsden,	<i>Concord, N. H.,</i>	C. 51.
Reed, Warren Augustus,	<i>East Boston,</i>	G. 35.
Richards, Edmund Ira,	<i>North Attleborough,</i>	W. 13.
Richardson, Homer Bartlett,	<i>Boston,</i>	Little's Block 15.
Riggs, Frank Preston Blair,	<i>Paris, France,</i>	W. 29.
Rivers, George Robert Russell,	<i>Boston,</i>	M. 50.
Rix, Frank Reader,	<i>Lowell,</i>	C. 29.
Ross, Denman Waldo,	<i>Cambridge,</i>	24 Craigie St.
Sears, Frederick Richard,	<i>Boston,</i>	W. 6.
Secor, Thomas Ely,	<i>New York, N. Y.,</i>	T. 38.
Shaw, Francis,	<i>Boston,</i>	W. 16.
Silsbee, Arthur Boardman,	<i>Boston,</i>	W. 32.
Smith, Hamilton Irving,	<i>East Boston,</i>	M. 25.
Stone, Frederick Walter,	<i>Somerville,</i>	Somerville.
Stone, Nathaniel Hathaway,	<i>New Bedford,</i>	H'y 14.
Stowe, Charles Edward,	<i>Mandarin, Fla.,</i>	Dolton's Block 17.
Sturgis, Francis Shaw,	<i>Boston,</i>	W. 39.
Taylor, Nelson,	<i>New York, N. Y.,</i>	M. 14.
Taylor, Thomas Fenton,	<i>Brooklyn, N. Y.,</i>	G. 3.
Thayer, Albert Smith,	<i>Worcester,</i>	T. 11.
Thayer, Hollis,	<i>Boston,</i>	G. 42.
Townsend, William Wilder,	<i>Washington, D. C.,</i>	C. 21.
Van Duzer, Henry Sayre,	<i>Newburgh, N. Y.,</i>	Little's Block 17.
Wadsworth, William Henry,	<i>Maysville, Ky.,</i>	30 Mt. Auburn St.
Walton, George Lincoln,	<i>Westfield,</i>	W. 15.

Ward, Frank Pemberton,	<i>Boston,</i>	52 Brattle St.
Ward, James Montfort,	<i>Newport,</i>	48 Brattle St.
Ward, Samuel Gray,	<i>New York, N. Y.,</i>	Little's Block 20.
Warren, Samuel Dennis,	<i>Boston,</i>	Little's Block 19.
Watson, Frank Sedgwick,	<i>Milton,</i>	W. 33.
Wenzell, Henry Burleigh,	<i>Cambridge,</i>	W. 21.
Wetmore, Charles Whitman,	<i>Marquette, Mich.,</i>	W. 11.
Whiting, Augustus,	<i>Newport, R. I.,</i>	H'ke 8.
Wilby, Joseph,	<i>Cincinnati, O.,</i>	S. 12.
Willard, Monroe Livingston,	<i>Chicago, Ill.,</i>	M. 45.
Williamson, William Henry,	<i>Cincinnati, O.,</i>	S. 12.
Willson, Edmund Russell,	<i>Salem,</i>	C. 33.
Wood, Charles James,	<i>Cleveland, O.,</i>	W. 54.
Woodman, Walter,	<i>Cambridge,</i>	9 Kirkland Place.
Woodward, John Kidson,	<i>New Albany, Ind.,</i>	G. 19.
Young, George Frederick,	<i>Lanesville,</i>	C. 13, 14.

## FRESHMAN CLASS.

NAME.	RESIDENCE.	ROOM.
Abercrombie, Daniel Webster,	<i>Montgomery, Ala.,</i>	26 Brattle Sq.
✓ Amory, Harcourt,	<i>Brookline,</i>	M. 19.
Andrews, Walter Scott,	<i>New York, N. Y.,</i>	H'ke 24.
Bacon, Daniel Carpenter,	<i>Jamaica Plain,</i>	M. 43.
Baldwin, John Richard,	<i>Lynn,</i>	H. 1.
Barrett, Frank Wheeler,	<i>Concord,</i>	C. 23.
Barrows, Charles Henry,	<i>Springfield,</i>	T. 63.
Bell, Charles John,	<i>Somerville,</i>	W. 19.
Bellamy, Charles Joseph,	<i>Chicopee Falls,</i>	T. 28.
Bennett, Marcus Percival,	<i>Chelsea,</i>	T. 30.
Berry, John King,	<i>Boston Highlands,</i>	C. 7.
Bicknell, Edward,	<i>Boston,</i>	W. 51.
Blaine, Walker,	<i>Augusta, Me.,</i>	W. 18.
Blandy, Frederick Addison,	<i>Zanesville, O.,</i>	W. 38.
Blymyer, Charles Albert,	<i>Lewistown, Pa.,</i>	12 Bow St.
Blymyer, George Gilbert,	<i>Lewistown, Pa.,</i>	12 Bow St.
Bolan, Joel Carlton,	<i>Charlestown,</i>	S. 4.
Bond, Amos Lawrence,	<i>West Newton,</i>	C. 54.
Botume, John Franklin,	<i>Stoneham,</i>	W. 35.
✓ Bowditch, Alfred,	<i>Jamaica Plain,</i>	W. 46.
Boynnton, William Edmund,	<i>Winchester,</i>	W. 20.

/ Bradford, George Hillard,	<i>Boston Highlands,</i>	W. 45.
Bradley, Robert Stow,	<i>Boston,</i>	M. 9.
Bradley, William Mason,	<i>Bucksport, Me.,</i>	C. 63.
Brown, Harry Hobart,	<i>Chester, Pa.,</i>	S. 3.
Brownlow, William Albert,	<i>Cambridgeport,</i>	16 Perry St.
Bullard, James Hovey,	<i>Holliston,</i>	C. 38.
Burbank, William Harry,	<i>Cambridge,</i>	22 Church St.
Burnham, Frank Wesley,	<i>Cambridge,</i>	351 Harvard St.
Chapin, Frank Woodruff,	<i>Erie, Pa.,</i>	C. 28.
Chase, Frank Eugene,	<i>Boston,</i>	M. 9.
Chase, William Leverett,	<i>Brookline,</i>	W. 1.
Cleaves, James Edwin,	<i>Medford,</i>	H. 19.
/ Clymer, William Branford Shubrick,	<i>Washington, D. C.,</i>	M. 51.
Collins, Walter Stow,	<i>Cleveland, O.,</i>	M. 39.
Culbreth, Richard Smith,	<i>Smyrna, Del.,</i>	D. 24.
Cumming, George Miller,	<i>Pottsville, Pa.,</i>	M. 54.
> Curtis, Ralph Wormeley,	<i>Boston,</i>	52 Brattle St.
Davis, Edmund Walstein,	<i>Providence, R. I.,</i>	Little's Block 18.
Davis, William,	<i>Plymouth,</i>	H. 20.
Dexter, Orrando Perry,	<i>New York, N. Y.,</i>	100 Mt. Auburn St.
Dickinson, Charles Albert,	<i>Westminster, Vt.,</i>	W. 9.
Dillon, Augustus Reynolds,	<i>Lynn,</i>	S. 16.
Drew, Frank Haynes,	<i>Boston,</i>	T. 31.
DuBois, Loren Griswold,	<i>New York, N. Y.,</i>	M. 2.
Duff, William Frederic,	<i>Jamaica Plain,</i>	W. 23.
Dyer, Willard Knowlton,	<i>Boston,</i>	W. 48.
Eddy, Arthur Stearns,	<i>East Somerville,</i>	East Somerville.
Eldridge, George Homans,	<i>Boston,</i>	T. 46.
Ernst, Harold Clarence,	<i>Boston,</i>	G. 4.
Finck, Henry Theophilus,	<i>Aurora, Oregon,</i>	17 Dunster St.
Fisher, Samuel Tucker,	<i>Canton,</i>	W. 50.
Flint, James Henry,	<i>Middleton,</i>	C. 42.
Fuller, Arthur Ossoli,	<i>Cambridge,</i>	13 Hilliard St.
Gaff, Thomas Trueman,	<i>Cincinnati, O.,</i>	W. 14.
Gardiner, Robert Hallowell,	<i>Montreal, Canada,</i>	S. 19.
Gopsill, John Garretson,	<i>Jersey City, N. J.,</i>	H'ke 19.
Gove, William Henry,	<i>Lynn,</i>	H. 1.
Grandin, Egbert Henry,	<i>Mobile, Ala.,</i>	10 Appian Way.
Green, Frederick Lewis,	<i>Ashfield,</i>	C. 20.
Green, George Walton,	<i>New York, N. Y.,</i>	W. 44.
Green, Herbert,	<i>Brooklyn, N. Y.,</i>	M. 54.
Griffin, Frederick Wood,	<i>Concord,</i>	C. 23.



Guild, Robert Wheaton,	<i>West Roxbury,</i>	M. 20.
Hall, Edward Cunningham,	<i>Kingston,</i>	H. 20.
Harding, Emor Herbert,	<i>Boston,</i>	H'ke 47.
Harris, Azariah Boody,	<i>Springfield,</i>	H'ke 46.
Harrison, Edmond Pitts,	<i>Cincinnati, O.,</i>	20 Berkeley St.
Hasbrouck, Roe,	<i>Newburgh, N. Y.,</i>	H'ke 37.
Hinkley, Holmes,	<i>Boston,</i>	W. 50.
Hoar, David Blakely,	<i>Brookline,</i>	8 Holyoke St.
Hoar, Rockwood,	<i>Worcester,</i>	T. 67.
Hobson, Henry Dexter,	<i>Wiscasset, Me.,</i>	M. 23.
Hodges, Charles Francis,	<i>Worcester,</i>	W. 44.
Holman, John Charles,	<i>Cambridge,</i>	140 North Av.
Hooper, Horace Nathaniel,	<i>Boston,</i>	C. 34.
Humason, William Lawrence,	<i>New Britain, Ct.,</i>	T. 15.
Isham, Charles,	<i>New York, N. Y.,</i>	H'ke 41.
Ives, George Burnham,	<i>Salem,</i>	G. 25.
Jackson, Oscar Roland,	<i>Boston,</i>	W. 51.
Jacobs, George Edward,	<i>Boston,</i>	T. 15.
Jaques, Henry Percy,	<i>Boston,</i>	M. 15.
Jecko, Steven Henry,	<i>St. Louis, Mo.,</i>	H'ke 3.
Jones, Alfred Henry,	<i>Williamsville, Vt.,</i>	C. 63.
Joy, Glidden Wood,	<i>Swampscott,</i>	T. 37.
Kebler, Charles Abbot,	<i>Cincinnati, O.,</i>	G. 20.
Kendall, William Mitchell,	<i>Cambridgeport,</i>	123 Inman St.
Kerr, Samuel Wilson,	<i>Pittsburg, Pa.,</i>	M. 18.
Kidder, Frederick Henry,	<i>Medford,</i>	H. 19.
Kip, William Fargo,	<i>Buffalo, N. Y.,</i>	H'ke 2.
Kittredge, Samuel Dana,	<i>Peekskill, N. Y.,</i>	M. 21.
Lee, Elliot Cabot,	<i>Brookline,</i>	G. 44.
Lefavour, Edward Brown,	<i>Beverly,</i>	16 Winthrop St.
Leland, Willis Daniels,	<i>Boston,</i>	M. 15.
Livingood, Frank Shalter,	<i>Reading, Pa.,</i>	W. 4.
Long, George Ashley,	<i>Boston Highlands,</i>	W. 45.
Longfellow, Alexander Wadsworth,	<i>Portland, Me.,</i>	39 Brattle St.
Lowell, Percival,	<i>Brookline,</i>	M. 19.
Lufkin, Walter Emerson,	<i>Galveston, Texas,</i>	M. 38.
Lynn, Melvin Everhart,	<i>Pittsburg, Pa.,</i>	M. 11.
MacArthur, Frank,	<i>Washington, D. C.,</i>	T. 28.
McDuffie, Fred Clement,	<i>Taunton,</i>	W. 26.
McMartin, Daniel Cady,	<i>Wadiloup, Iowa,</i>	28 Dunster St.
Manning, Leonard Jarvis,	<i>Baltimore, Md.,</i>	40 Winthrop St.
Marcou, Philippe Belknap,	<i>Cambridge,</i>	42 Garden St.

Mason, William,	Taunton,	H'ke 36.
Meeks, Octavius Warren,	New York, N. Y.,	M. 11.
Mercur, John Davis,	Towanda, Pa.,	M. 38.
Miller, Lawrence Vernon,	Baltimore, Md.,	H'ke 43.
Mills, Hiram Roberts,	Lexington,	C. 70.
Minot, Francis,	West Roxbury,	T. 66.
Moody, William Henry,	Haverhill,	C. 38.
Morgan, Frank Hatch,	Le Roy, N. Y.,	M. 56.
Morris, Thomas Hollingsworth,	Baltimore, Md.,	H'ke 20.
Morris, William Radcliff,	Derry, N. H.,	8 Holyoke St.
Morse, William Russell,	Charlestown,	S. 4.
Newbury, Arthur St. John,	Cleveland, O.,	W. 49.
Nichols, Henry Gilman,	Saco, Me.,	S. 3.
Nickerson, George Augustus,	Jamaica Plain,	W. 22.
Oliphant, Robert Henry,	St. Louis, Mo.,	M. 20.
Olmsted, John Barton,	Le Roy, N. Y.,	M. 56.
Osgood, Howard Lawrence,	Upland, Pa.,	387 Harvard St.
Otis, Walter Joseph,	Chicago, Ill.,	H'ke 37.
Parker, Edward Everett,	Salem,	C. 40.
Parker, Harold,	Lancaster,	M. 46.
Peckham, Cyrus Tracy,	Ledyard, Ct.,	H. 4.
Peirce, Benjamin Osgood,	Beverly,	413 Broadway.
Perry, Nelson Williams,	Cincinnati, O.,	H'ke 47.
Pine, George Stevenson,	Philadelphia, Pa.,	C. 26.
Porter, Frank Morris,	Revere,	S. 20.
Potter, Silas Allen,	Boston Highlands,	22 Avon St.
Richards, David Jay,	E. Steuben, N. Y.,	C. 62.
Richards, William Phillips,	Cambridge,	733 Cambridge St.
Riggs, William Corcoran,	Paris, France,	Little's Block 18.
Roman, James Dixon,	Hagerstown, Md.,	W. 49.
Sargent, George Amory,	Jamaica Plain,	G. 32.
Sargent, Henry,	Worcester,	T. 67.
Seligman, David Theodore,	New York, N. Y.,	387 Harvard St.
Sherwood, Samuel,	New York, N. Y.,	M. 17.
Sleeper, Frank Henry,	Cambridge,	126 North Av.
Smiley, William Henry,	Melrose,	3 Tremont St., Boston.
Stetson, Edward,	Bangor, Me.,	H'ke 36.
Stevens, Milan Filmore,	Charlestown,	G. 4.
Stickney, Charles Wade,	Chicago, Ill.,	C. 10.
Stiles, Sumner Burritt,	Middleton,	C. 42.
Stimson, Frederick Jesup,	Dedham,	M. 58.
Strong, Charles Pratt,	East Bridgewater,	M. 39.

Talbot, Thomas Lincoln,	<i>Portland, Me.,</i>	39 Brattle St.
Tappan, Walter,	<i>Boston,</i>	W. 12.
Taylor, Nathan Augustus,	<i>Somerville,</i>	Somerville.
Thomas, Gardner,	<i>Orange, N. J.,</i>	M. 17.
Thomas, Isaiah,	<i>Boston,</i>	W. 22.
Thompson, Newell Aldrich,	<i>Boston,</i>	M. 43.
Thomsen, Alonzo Lilley,	<i>Baltimore, Md.,</i>	M. 36.
Thwing, Charles Franklin,	<i>Farmington, Me.,</i>	W. 9.
Twombly, Arthur B.,	<i>Boston,</i>	M. 18.
Tyng, James Alexander,	<i>Cambridge,</i>	12 Mason St.
Ward, George Curwin,	<i>Cambridge,</i>	49 Linnæan St.
Ware, Charles Eliot,	<i>Fitchburg,</i>	S. 19.
Welch, James Edward,	<i>Worcester,</i>	C. 8.
Weld, William Fletcher,	<i>Brookline,</i>	M. 12.
Wellman, Francis Lewis,	<i>Brookline,</i>	W. 1.
Wells, Benjamin Willis,	<i>Boston,</i>	G. 16.
Wendell, Barrett,	<i>New York, N. Y.,</i>	M. 16.
Wetherbee, Addison Herbert,	<i>Melrose,</i>	H. 3.
Wetherbee, John Elliott,	<i>Boston Highlands,</i>	G. 30.
Wheeler, Alfred Allison,	<i>San Francisco, Cal.,</i>	M. 23.
Wheeler, Kendrick,	<i>Stamford, Ct.,</i>	H'ke 20.
Wheelwright, Edmund March,	<i>Roxbury,</i>	M. 37.
Wheelwright, John Tyler,	<i>Boston Highlands,</i>	W. 37.
Wiggins, John,	<i>St. Louis, Mo.,</i>	H'ke 46.
Williams, Theodore Chickering,	<i>Boston Highlands,</i>	C. 7.
Wills, William John,	<i>Cambridge,</i>	58 Garden St.
Winslow, John Flack,	<i>Cincinnati, O.,</i>	10 Chestnut St.
Witherlee, Charles Bryant,	<i>Castine, Me.,</i>	G. 29.
Woodberry, George Edward,	<i>Beverly,</i>	C. 31.

## SUMMARY.

SENIORS . . . . .	131
JUNIORS . . . . .	162
SOPHOMORES . . . . .	166
FRESHMEN . . . . .	176
Total . . . . .	635

## REQUISITES FOR ADMISSION.

In History and Geography all candidates will be examined as follows :—

In the elements of Physical Geography ;

In Ancient and Modern Geography ;

In the historical and geographical notices found in the required Greek and Latin text-books ;

And in the first five chapters of Freeman's Outlines of History, or in Smith's Smaller History of Greece, or Sewell's History of Greece.

In Latin, Greek, and Mathematics, each candidate must be examined in one of the two following courses of study :—

### COURSE I.

#### LATIN.\*

The whole of Virgil.

The whole of Cæsar's Commentaries.

Ten Orations of Cicero.

Latin Grammar (including Prosody).

Writing Latin.

#### GREEK.†

Goodwin and Allen's Greek Reader, or the whole of Xenophon's Anabasis.

The first three books of the Iliad (omitting the Catalogue of Ships).

Greek Grammar (including Metres).

Writing Greek (with the Accents).

#### MATHEMATICS.

Arithmetic, including the Metric System of Weights and Measures.

The elements of Algebra, as far as through Quadratic Equations.

Elementary Plane Geometry, including so much as is contained in the first thirteen chapters of Peirce's Geometry.

\* In Latin the following pronunciation is recommended : *ā* as in *father*, *ă* the same sound shorter, *ē* like *e* in *fête*, *ē* as in *set*, *ī* as in *machine*, *ī* as in *sit*, *ō* as in *hole*, *ō* as in *nor*, *ū* as in *rude*, *ū* as in *put* ; *j* like *y* in *year*, *c* and *g* like Greek *κ* and *γ*.

† Instructors are requested to teach their pupils in pronouncing Greek to use the *Greek Accents*, and to give (for example) *α* the sound of *a* in *father*, *η* that of *a* in *fat*, *ι* that of *i* in *machine*, etc.

## COURSE II.

## LATIN.

The Eclogues and first six books of the *Æneid* of Virgil.

The first four books of Cæsar's Commentaries.

Six Orations of Cicero.

Latin Grammar (including Prosody).

## GREEK.

The first 111 pages of Goodwin and Allen's Greek Reader, or the first four books of Xenophon's *Anabasis*.

The first two books of the *Iliad* (omitting the Catalogue of Ships).

Greek Grammar (including Metres).

## MATHEMATICS.

Arithmetic, including the Metric System of Weights and Measures.

Algebra (as much as is contained in the advanced text-books, such as the *larger* Algebras of Todhunter, Loomis, Robinson, Greenleaf, &c.).

Plane and Solid Geometry.

Logarithms.

Plane Trigonometry, by the Analytic Method (as much as is contained in the first six chapters of Peirce's Trigonometry, or the large print of the first eight chapters of Chauvenet's Trigonometry).


Elementary Mechanics (as much as is contained in Snowball and Lund's Cambridge Course of Natural Philosophy).

Real equivalents will be received for any of the classics named above, or for parts of them ; as, for instance, *six* Books of Ovid's *Metamorphoses*, in place of the *last four* Books of the *Æneid*, or of the *Bucolics* and *Georgics* of Virgil ; the *Catiline* and *Jugurtha* of Sallust, in place of the *last three* Books of Cæsar ; the *first three*, or the *last three* Books of Xenophon's *Cyropædia*, or the extracts from Herodotus in Felton's Greek Historians, in place of the *last three* Books of the *Anabasis*.

No particular text-book in Grammar is required ; but either Goodwin's or Hadley's Elementary Greek Grammar, and either Allen's or Harkness's Elementary Latin Grammar, will serve to indicate the nature and amount of the grammatical knowledge demanded.

No partial substitutions, or interchanges, between Courses I. and II. will be allowed.

Candidates who pass the examinations in the additional Mathematical requisitions will be admitted to the advanced sections in Mathematics and Physical Science ; and all who hope to attain distinction in these studies are strongly advised to prepare themselves in the Mathematical subjects indicated above in Column II.

 *Correct spelling,\* punctuation, and expression, as well as legible handwriting, are expected of all applicants for admission; and failure in any of these particulars will be taken into account at the examinations.*

## SUBSEQUENT EXAMINATIONS.

### FRENCH.

An examination in the translation of French prose will be held at the beginning of the Freshman year; those students who pass this examination satisfactorily will not be required to study French in the College course.

### ENGLISH.

Members of the Freshman Class are examined, as early as possible after their admission, in reading aloud English prose. Prizes will be awarded for excellence. For 1873 students may prepare themselves in Goldsmith's Vicar of Wakefield.

### THE CLASSICS (not required).

There will be additional examinations in the following classical subjects:—

#### LATIN.

Horace, Odes.  
Livy, Three Books.  
Cicero, De Senectute.

#### GREEK.

Plato's Apology and Crito.  
Books IV., V., VI., and VII. of the Iliad.

No candidate will be *required* to present himself at these additional examinations; but those who pass these, with the other classical examinations of Course I. above, will be placed in advanced sections in Latin and Greek immediately on entering College. All those who hope to attain distinction in classical studies, or to graduate with classical honors, are strongly advised to pass these examinations on entering.

*A set of recent Examination Papers will be sent to any Teacher, on application to the Secretary.*

## TIME AND CONDITIONS OF EXAMINATION.

All candidates for admission to any Class in College must in the first place be examined for admission to the *Freshman Class*.

The regular examination for admission to the Freshman and Sopho-

\* Worcester's Dictionary is the standard.

more Classes will take place on Thursday, Friday, and Saturday, June 26, 27, and 28, 1873, beginning precisely at 8 o'clock A. M., on Thursday. The candidates will assemble in Massachusetts Hall. Attendance on the three days is required.

Candidates for admission to the *Sophomore* Class may either finish their examinations in June, or defer the examination on the studies of the Freshman year until the end of the vacation.

The continuation of the examination of those who offer themselves for the *Junior* and *Senior* Classes will be deferred until the end of the vacation.

A second examination for admission to the Freshman and Sophomore Classes will take place at the beginning of the Academic year, on Thursday, Friday, and Saturday, September 25, 26, and 27, 1873, attendance on the three days being required. The candidates will assemble on Thursday, September 25, in Massachusetts Hall, at 8 o'clock, A. M. On the same day, the examination of candidates offered for the Junior and Senior Classes (including the deferred examination of those offered in June) will take place, beginning at 8 A. M., in Massachusetts Hall.

*No person will be examined for admission to College at any other time than those above specified.*

Candidates may be admitted to advanced standing as late as the beginning of the Senior year, provided they present themselves for examination as above directed. The candidate for admission to advanced standing, whether from another College or not, must appear, on examination, to be well versed in the following studies :—

1. In the studies required for admission to the Freshman Class.
2. In all the *required* studies already gone over by the Class for which he is offered ; and in as many *elective* studies as he would have pursued if he had entered at the beginning of the course.

Every candidate, before examination, must produce testimonials of good moral character, and, if admitted, must give a bond for six hundred dollars to pay all charges accruing under the laws and customs of the University. The bond must be executed by two bondsmen, who must be satisfactory to the Steward of the College, and one of them must be a citizen of Massachusetts.

# COURSE OF INSTRUCTION

FOR THE ACADEMIC YEAR 1871 - 72.

THE studies pursued in 1871 - 72 by a candidate for the Bachelor's degree were partly prescribed and partly optional.

The prescribed studies occupied the whole of the Freshman year, about one half of the Sophomore year, and about two fifths of the Junior year. In the Senior year certain lectures and written exercises were required. The actual course of study was as follows :—

## FRESHMAN CLASS.

[All studies required.]

*Greek.* 1. Herodotus, Extracts in Goodwin's Greek Reader. — Homer, Odyssey, Book VI. and half of Book VII. — Plato, Apology. *Two hours a week.* MR. PALMER.

2. Xenophon, Memorabilia, half of Book I. — Aristophanes, Clouds and Birds. — Grote's History of Greece, Chapters 67, 68. — Goodwin's Greek Moods and Tenses. — Greek Composition. *Three hours in two weeks.* MR. FISKE.

*Latin.* 1. Livy, Books XXI. and XXII. — Seneca, Hercules Furens. — Exercises in Composition. *Two hours a week during first half-year; three hours in two weeks during second half-year.* MR. SMITH.

2. Cicero, De Senectute. — Horace, Odes and Carmen Saeculare. — Exercises in Translation and Composition. *Three hours in two weeks during first half-year; two hours a week during second half-year.* MR. EVERETT.

*Mathematics.* 1. Section A. Logarithms. — Chauvenet's Trigonometry, Chapters 1 - 8. — Olney's General (Analytic) Geometry (Selections from Chapters 1 - 4). *Two hours a week.* ASST. PROF. WHITE.

2. Section A. Peirce's Plane and Solid Geometry. — Hamblin Smith's Algebra, Chapters 1 - 37. *Two hours a week.* MR. MYERS.

Section B used the same text-books as Section A, but omitted certain specified chapters and sections.



**German.** Whitney's Grammar. — Selections from Whitney's Reader (Der zerbrochene Krug. Das Wirthshaus zu Cransac). — German Composition. *Two hours a week.* MESSRS. PERRY and AMES.

**Elocution.** The Mechanism of Speech, by Lectures and Exercises. — Readings in Prose. *One hour a week.* MR. JENNISON.

**Ethics.** Champlin's Principles of Ethics. — Bulfinch's Evidences of Christianity. *Two hours a week during first half-year.*

PROF. PEABODY.

**Chemistry.** Roscoe's Chemistry (Inorganic). — Lectures. *Three hours a week during second half-year.* *One recitation.* ASST. PROF. G. A. HILL.  
*Two lectures.* PROF. COOKE.

## SOPHOMORE CLASS.

### REQUIRED STUDIES.

**German.** The same as the Freshman Course. *Two hours a week.*

MR. BRANNAN.

**Rhetoric.** Bain's Rhetoric. — Herbert Spencer on Style. — Exercises in Verbal Criticism and English Composition. *Two hours a week.*

MR. FAY.

**Elocution.** Analysis of Vocal Expression, by Lectures, with Exercises. — Readings in Paradise Lost. *One hour a week.* MR. JENNISON.

**History.** Rawlinson's Manual of Ancient History (History of Rome down to the death of Augustus). *Two hours a week during first half-year.*

PROF. GURNEY.

**Physics.** Ganot's Physics, Atkinson's edition, Books I. — IV. *Two hours a week during first half-year.* ASST. PROF. G. A. HILL.

**Chemistry.** Roscoe's Chemistry (Inorganic). — Lectures. *Three hours a week (one recitation and two lectures) during second half-year.*

ASST. PROF. JACKSON.

NOTE. — In 1871-72 German and Chemistry were transferred as required studies into the Freshman year.

### ELECTIVE STUDIES.

*Two hours a week each.*

#### I. THE CLASSICS.

**Greek 1.** Sophocles, Ajax. — Aristophanes, Knights (700 lines). — Thucydides, one half of Books VI., VII. — Grote's History of Greece. — Exercises in Translation and Composition. 116 *Sophomores.* MR. ANDERSON.

*Greek* 2. The Olynthiacs and Philippics of Demosthenes. — Grote's History of Greece, Chapters 86-90. 8 *Sophomores*.

MR. FISKE.

*Greek* 3. Homer, Odyssey, Books IX., XI, XII. — Plato, Crito and Phaedo. — Greek Philology. 8 *Sophomores*.

MR. ANDERSON.

*Latin* 1. Cicero, De Amicitia; Epistola ad Q. Fratrem; Pro Roscio Amerino. — Plautus, Trinummus. 152 *Sophomores*.

MR. GREENOUGH.

*Latin* 2. Cicero, Tusculan Disputations, Book I.; De Oratore, Book II. (one half). — Horace, Satires, Book I. 35 *Sophomores*.

MR. GREENOUGH.

## II. MODERN LANGUAGES.

*French*. Section A. Octave Feuillet, Le Roman d'un Jeune Homme Pauvre; Dalila. — Molière, Le Bourgeois Gentilhomme; Les Femmes Savantes. — Chardenal's Exercises.

Section B. Scribe et Legouvé, Les Doigts de Fée. — About, Trente et Quarante. — Laboulaye, Paris en Amérique. — Chardenal's Exercises.

Section C. La Poudre aux Yeux. — Laboulaye, Paris en Amérique. Chardenal's Exercises. 90 *Sophomores*, 27 *Juniors*.

MR. AMES.

*Italian*. Toscani's Grammar. — Prose Scelte (Selections). — Prose Composition. 19 *Sophomores*.

ASST. PROF. NASH.

## III. PHILOSOPHY.

Jevons's Logic. — Mansel's Metaphysics. (The same as the Junior Required Course.) 14 *Sophomores*.

ASST. PROF. PETERSON.

## IV. MATHEMATICS.

*Course* 1. Chauvenet's Spherical Trigonometry; Seaver's Formulas. — Howison's Analytic Geometry (Selections). 42 *Sophomores*, 1 *Freshman*.

PROF. J. M. PEIRCE.

*Course* 2. Elements of the Differential Calculus. (Lectures, with Haddon's Examples; J. A. Serret, Selections.) 9 *Sophomores*, 1 *Senior*.

PROF. J. M. PEIRCE.

*Course* 3. Applications of Plane Trigonometry to Heights and Distances, Navigation, and Surveying. — Spherical Trigonometry

(Chauvenet), and its Applications to Astronomy and Navigation.  
36 *Sophomores*, 3 *Juniors*, 8 *Freshmen*. ASST. PROF. WHITE.

#### V. PHYSICS (INCLUDING CHEMISTRY).

*Chemistry*. Eliot and Storer's Inorganic Chemistry, with Laboratory work. — Cooke's Chemical Philosophy, Part I. 31 *Sophomores*, 1 *Junior*. ASST. PROF. JACKSON.

#### VI. NATURAL HISTORY.

Page's Advanced Text-Book of Physical Geography, Chapters 1-12.  
— Loomis's Meteorology, Chapters 1-6. — Lyell's Student's Elements of Geology (Selections). 93 *Sophomores*, 1 *Freshman*.  
ASST. PROF. PETTEE.

### JUNIOR CLASS.

#### REQUIRED STUDIES.

*Philosophy*. Jevons's Logic. — Mansel's Metaphysics. *Two hours a week*. ASST. PROF. PETERSON.

*Political Science*. Rogers, Political Economy. — Alden, Constitution of the United States. *One hour a week*. PROF. DUNBAR.

*Physics*. 1. Lectures on Mechanics (including Hydrostatics and Hydrodynamics), and on Electricity and Magnetism. *One hour a week*.  
PROF. LOVERING.

2. Ganot's Physics, Book VI. as far as § 357, and Book VII. as far as § 551. *Two hours a week (one recitation and one lecture) during first half-year*. ASST. PROF. TROWBRIDGE.

*Rhetoric*. Whately's Rhetoric. — Themes. *Two hours a week during second half-year*. PROF. CHILD.

#### ELECTIVE STUDIES.

*Three hours a week each.*

#### I. THE CLASSICS.

*Greek*. 1. Aeschines against Ctesiphon. — Demosthenes on the Crown. — Aeschylus, Agamemnon. — Sophocles, Antigone. — Aristophanes, Knights. 30 *Juniors*. PROF. GOODWIN.

*Greek*. 2. Polybius, Books I. and III. 4 *Juniors*. PROF. SOPHOCLES.

*Latin*. Epistles of Horace. — Tacitus, Agricola and Dialogus. — Quintilian, Book I. 44 *Juniors*, 3 *Seniors*. PROF. LANE.

## II. MODERN LANGUAGES.

*English.* Hadley's Brief History of the English Language. — Marsh's Lectures, Vol. I. — Abbot's Shakespearian Grammar. — Three Plays of Shakspeare. — Lectures. 23 Juniors, 7 Seniors.

PROF. CHILD.

*French.* Lemaire, Grammaire Française. — Five Comedies by Molière. — About, Le Roi des Montagnes. — French Composition. 22 Juniors, 5 Seniors, 26 Sophomores.

PROF. BÔCHER.

*German.* Selections from Lessing, Schiller, and Goethe. 79 Juniors, 3 Sophomores.

MR. PERRY.

*Italian.* Nota's La Fiera. — Manzoni's Promessi Sposi (Selections). — Prose Composition, with Toscani's Grammar for reference. 8 Juniors.

ASST. PROF. NASH.

*Spanish.* Sales's Josse's Grammar and Exercises. — Gil Blas (Selections). — Prose Composition. 10 Juniors, 2 Seniors.

ASST. PROF. NASH.

## III. PHILOSOPHY.

Locke, Essay on Human Understanding. — Cousin, Philosophie de Locke. — Bowen, Ethics and Metaphysics (Selections). — Mill's Examination of Hamilton's Philosophy. — Lectures. 8 Juniors.

PROF. BOWEN.

## IV. HISTORY.

*History of Germany, France, and the Church* (from the Eighth to the Fifteenth Century). — Hallam's Middle Ages. — Kohlrausch's or Menzel's History of Germany. — Student's History of France. — Milman's History of Latin Christianity. — Lectures. 33 Juniors.

ASST. PROF. ADAMS.

*Mediæval Institutions.* Germania of Tacitus. — Maine's Ancient Law, and Village Communities. — Hallam's Middle Ages. — Lectures on Feudalism and the Salic Law. 7 Juniors.

ASST. PROF. ADAMS.

## V. MATHEMATICS.

*Differential and Integral Calculus* (second course). Peirce's Curves and Functions, Vol. I. and the greater part of Vol. II., with Lectures on the Theory and Functions of Complex Variables. 2 Juniors, 2 Seniors.

PROF. J. M. PEIRCE.

*Mechanics* (Kerr). 5 Juniors, 1 Senior.

PROF. J. M. PEIRCE.

## VI. PHYSICS (INCLUDING CHEMISTRY).

*Physics.* Herschel's Outlines of Astronomy. — Acoustics. 43 Juniors.

PROF. LOVERING.

*Experimental Physics.* Practical Exercises in the Laboratory, including the use of instruments of precision in testing the laws of Mechanics, Acoustics, Optics, Magnetism, and Electricity. 1 Junior, 1 Senior.

ASST. PROF. TROWBRIDGE.

*Chemistry.* Galloway's Qualitative Analysis. — Cooke's Chemical Philosophy, Part II. — Lectures. — Laboratory work. 30 Juniors, 2 Seniors.

PROF. COOKE,

assisted by MR. H. B. HILL.

#### VII. NATURAL HISTORY.

*Botany and Zoölogy.* Gray's Structural and Systematic Botany. — Field, Forest, and Garden Botany. — Lectures and Laboratory work in Zoölogy. — Microscopy. 31 Juniors, 10 Seniors.

PROFS. GRAY and SHALER,

assisted by DR. FARLOW.

#### VIII. MUSIC.

Theory of Music. — Harmony. — Counterpoint and Choral Figuration. — Free Composition. 2 Juniors, 7 Sophomores.

MR. PAINE.

### SENIOR CLASS.

#### REQUIRED STUDIES.

*Physics.* Lectures on Mechanics, Optics, Acoustics, Electricity and Magnetism. One hour a week during first half-year.

PROF. LOVERING.

*Rhetoric.* Themes.

MR. FAY.

#### ELECTIVE STUDIES.

Three hours a week each.

#### I. THE CLASSICS.

*Greek Poetry.* Aeschylus, Agamemnon and Eumenides. — Sophocles, Oedipus Tyrannus. — Euripides, Iphigenia in Tauris. — Aristophanes, Acharnians. — Selections from the Lyric Poets. 10 Seniors, 1 Sophomore.

PROF. GOODWIN.

*Greek Philosophy.* Plato, Protagoras and Gorgias. — Aristotle, Ethics (Books I. — IV., X.). 10 Seniors, 2 Juniors.

PROF. GOODWIN.

*Greek History.* Thucydides (Books I. — IV.). — Grote's History of Greece. 3 Seniors.

PROF. GOODWIN.

*Ecclesiastical Greek.* Christian Fathers, Justin (Apologies and Dialogue with Tryphon). — Hippolytus (Selections). 5 Seniors.

PROF. SOPHOCLES.

*Latin.* Cicero, pro Roscio Amerino. — Lucretius (Selections). — Catullus. — Propertius (Book I.). — Plautus, Bacchides. 30 *Seniors*.

PROF. LANE.

## II. MODERN LANGUAGES.

*French* 1. Brachet, Grammaire Historique. — Joinville, Mémoires. — Sand, Les Maîtres Sonneurs. — French Composition. — Early French Literature. 4 *Seniors*, 3 *Sophomores*. PROF. BÔCHER.

*French* 2. Pellissier, La Langue Française. — About, Trente et Quarante. — Molière, Le Bourgeois Gentilhomme. — French Composition. 16 *Seniors*, 3 *Sophomores*. PROF. BÔCHER.

*Old French.* Bartsch, Chrestomathie de l'Ancien Français. — Amis et Amiles. 7 *Seniors*. PROF. LOWELL.

*German.* Schiller, Wallenstein ; Thirty Years' War (two Books). — Goethe, Faust (First Part). 28 *Seniors*. PROF. CHILD.

*Italian.* Selections from the Early Italian. — Dante. — Ariosto. 5 *Seniors*. PROF. LOWELL.

## III. PHILOSOPHY.

*Course* 1. Bouillier, Histoire de la Philosophie Cartésienne. — Schwegler's History of Philosophy. — Kant's Critique of Pure Reason (Selections). — Lectures on the Philosophy of the Seventeenth Century, and on Kant and the later German Metaphysicians. 13 *Seniors*. PROF. BOWEN.

*Course* 2. Reichlin-Meldegg, Einleitung zur Philosophie, nebst System der Logik. — Schopenhauer, Die Welt als Wille und Vorstellung. 1 *Senior*. PROF. BOWEN.

*Course* 3. Fleming's Moral Philosophy. — Cicero, de Officiis. — Lectures on Ethics. 24 *Seniors*. PROF. PEABODY.

*Political Economy.* — Adam Smith's Wealth of Nations. — J. S. Mill's Political Economy. 75 *Seniors*. PROF. DUNBAR.

## IV. HISTORY.

*History of England* (to the Seventeenth Century). Freeman's Early English History. — Knight's, Lingard's, or Pearson's History of England. — Stubbs, Documents illustrative of the Constitutional History of England. 15 *Seniors*. ASST. PROF. ADAMS.

*Modern History* (Seventeenth Century and first half of the Eighteenth). Hallam's Constitutional History. — Stephen, Lectures on the History of France. 49 *Seniors*. PROF. TORREY.

*Modern History* (from the middle of the Eighteenth Century). May's

Constitutional History. — Eliot's and Hildreth's History of the United States. 30 *Seniors*. PROF. TORREY.

#### V. MATHEMATICS.

*Analytic Mechanics* (Peirce, Selections). 1 *Senior*. PROF. B. PEIRCE.

#### VI. PHYSICS (INCLUDING CHEMISTRY).

*Physics*. Undulatory theory of Light, Acoustics, Electricity, and Magnetism, in selections from the Treatises by Jackson and Ganot. — Lectures. 48 *Seniors*. PROF. LOVERING.

*Heat* (with its applications). 8 *Seniors*. PROF. GIBBS.

*Mineralogy*. Crystallography, with exercises in drawing and determining Crystals. — Descriptive Mineralogy, with practical exercises in determining Minerals with the use of the blowpipe. 10 *Seniors*.

PROF. COOKE.

*Chemistry*. The Principles of Organic Chemistry. — Practical exercises in Quantitative Analysis and in Chemical Physics. 7 *Seniors*.

PROF. COOKE.

#### VII. NATURAL HISTORY.

*Botany*. Gray's Structural and Systematic Botany. — Gray's Manual of Botany of Northern United States. — Field, Forest, and Garden Botany. 1 *Senior*. PROF. GRAY.

*Zoology*. Lectures. — Readings, with Commentary, from Modern Works on the Origin of Animals. — Laboratory work and Microscopy. 6 *Seniors*.

PROF. SHALER.

*Historical Geology*. Lectures and Laboratory work. 3 *Seniors*.

PROF. SHALER.

# COURSE OF INSTRUCTION

FOR THE ACADEMIC YEAR 1872 - 73.

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## REQUIRED STUDIES.

THE studies to be pursued by a candidate for the Bachelor's degree are partly prescribed and partly optional.

The prescribed studies occupy the whole of the Freshman year, and about one third of the Sophomore and Junior years. In the Senior year certain written exercises are required. The required studies for the year 1872 - 73 are as follows :—

### FRESHMAN CLASS. (176 Students.)

*Fifteen and one half hours a week of required work.*

*Greek.* Xenophon's Memorabilia (one Book). — Plato's Apology. — The Alcestis of Euripides. — The Clouds of Aristophanes. — Greek Composition. *Seven hours a fortnight.* MESSRS. FISKE and GOULD.

*Latin.* Livy (two Books). — Horace, Odes. — Cicero, De Senectute. — Latin Composition. *Seven hours a fortnight.*

MESSRS. SMITH and EVERETT.

*Mathematics.* Algebra. — Solid Geometry. — Plane Trigonometry. — Elements of Analytic Geometry. *Four hours a week.*

ASST. PROFS. SEAVER and WHITE.

*German.* Grammar. — Exercises in Translation and Composition. *Two hours a week.* MR. BARTLETT.

*Ethics.* Champlin's Principles of Ethics. — Bulfinch's Evidences of Christianity. *Two hours a week during the first half-year.*

PROF. PEABODY.

*Chemistry.* Elements of Inorganic Chemistry. — Lectures. *Three hours a week during the second half-year.* PROF. COOKE and Assistant.

### SOPHOMORE CLASS. (166 Students.)

*Four hours a week of required work besides written exercises.*

*Physics.* Ganot's Physics, translated by Atkinson, Books I., II., III. IV., and VI. *Two hours a week.* ASST. PROF. G. A. HILL.



**Rhetoric.** Campbell's Philosophy of Rhetoric (Selections). — Herbert Spencer's Essay on Style. *Two hours a week during the first half-year.*  
Six Themes, *during the second half-year.* ASST. PROF. A. S. HILL.

**History.** The History of Rome in Rawlinson's Manual of Ancient History. *Two hours a week during the first half-year.* PROF. GURNEY.

**Elementary French.** Grammar. — Exercises in Translation and Composition. *Two hours a week.* 84 Sophomores. MR. FESSENDEN.

[Required only of those who have failed to pass the admission requisites. See pages 53 and 216.]

#### JUNIOR CLASS. (162 Students.)

*Six hours a week of required work besides written exercises.*

**Philosophy.** Jevons's Logic. — Hamilton's Metaphysics. — Four Forensics. *Two hours a week.* MR. PALMER.

**Political Science.** Fawcett's Political Economy. — The Constitution of the United States. *Two hours a week during the first half-year.*  
PROF. DUNBAR.

**Physics.** Ganot's Physics, translated by Atkinson, first seven Chapters of Book VII. *Two hours a week during the first half-year.*

ASST. PROF. TROWBRIDGE.

Lectures on Mechanics, Electricity, Magnetism, and Acoustics.  
*One hour a week.* PROF. LOVERING.

**Rhetoric.** Whately's Rhetoric. *Two hours a week during the second half-year.*  
ASST. PROF. A. S. HILL.  
Six Themes. PROF. CHILD.

#### SENIOR CLASS. (131 Students.)

**Four Forensics.**

PROF. BOWEN.

[Candidates for Honors may substitute for these Forensics an equal number of Theses in their special departments, provided such substitution is permitted by the Professors in those departments.]

#### ANTICIPATION OF REQUIRED STUDIES.

The required studies of the Sophomore and Junior years are of an elementary character, and students who wish to be relieved from attendance at College exercises in one or more of them will be excused from such attendance if they pass a satisfactory examination in such study or studies at the beginning of the year in which they would regularly pursue the study or studies in College. *No such examination will be deemed satisfactory unless the student shall succeed in obtaining at least five eighths of*

*the maximum mark.* The mark obtained when the examination is successful will be credited to the student as his mark on the Annual Scale of the study which forms the subject of the examination. Preparation for these examinations can often be made while the student is preparing for College or in the long vacation, and time be thus gained for higher courses of study.

Notice of a student's intention to present himself for such examination in any required study for 1873-74 must be given to the Dean in writing before September 1, 1873.

Information concerning the requirements for passing the examination in any study can be obtained from the Instructor in that study.

### ELECTIVE STUDIES.

In addition to the prescribed studies, each Sophomore is required to pursue, and receives credit for, *four courses* chosen by himself from the elective studies, with at least *two exercises a week each*; each Junior, *three courses*, with *three exercises a week*; each Senior, *four courses*, with *three exercises a week*. Students are at liberty to attend the instruction in as many other subjects as they may have time and taste for.

In choosing his electives, the student must satisfy his instructors that he is qualified by his previous training to pursue those which he selects. With this limitation, all the courses given in the College are open to him in making his choice; but he is strongly recommended to make his choice with great care, under the best advice, and in such a manner that his elective courses from first to last may form a rationally connected whole.

It will be seen that students who prefer a course like the common required course of American Colleges can perfectly secure it, under this system, by a corresponding choice of studies; while others who have decided tastes, or think it wiser to concentrate their study on one or two subjects, obtain every facility for doing so, and still secure in the briefer required course an acquaintance with the elements of the leading branches of knowledge.

The following are the Elective Courses for the year 1872-73:—

[With each course is given the number of exercises a week, the number of students who elected the course, and the name of the Instructor.]

### I. THE CLASSICS.

#### GREEK.

##### *Sophomore Studies.*

1. Demosthenes, Philippics. — Aristophanes, Knights. — Aeschylus, Prometheus. *Twice a week.* 42 Sophomores. MR. ANDERSON.

2. Thucydides (Books VI. and VII.). — Greek Historians (Selections). History of Greek Literature. Composition and Translation. *Twice a week.* 22 *Sophomores.* MR. ANDERSON.
3. Plato (one half of the Gorgias). — Demosthenes, Olynthiacs. — Euripides, Alceste. — Homer (Selections from the Iliad). *Twice a week.* 82 *Sophomores.* MR. FISKE.

*Junior and Senior Studies.*

4. Aeschines against Ctesiphon. — Demosthenes on the Crown. — Aeschylus, Agamemnon and Prometheus. — Sophocles, Antigone. *Three times a week.* 34 *Juniors*, 1 *Senior.* PROF. GOODWIN.
5. Thucydides and Herodotus (Selections). — Grote's History of Greece. *Three times a week.* 3 *Juniors*, 2 *Seniors.* PROF. GOODWIN.
6. Polybius and Plutarch (Selections). *Three times a week.* 3 *Juniors*, 5 *Seniors.* PROF. SOPHOCLES.
7. Aeschylus, Seven against Thebes. — Sophocles, Electra. — Euripides, Medea. — Aristophanes, Frogs. — Elegiac and Lyric Poets (Selections). *Three times a week.* 7 *Seniors.* PROF. GOODWIN.
8. Plato, Protagoras and parts of the Republic. — Aristotle, Politics, four Books. *Three times a week.* 5 *Juniors*, 10 *Seniors.* PROF. GOODWIN.
9. Ecclesiastical Greek. (Selections from the Christian Fathers.) *Three times a week.* 2 *Seniors.* PROF. SOPHOCLES.

In Course 1, in addition to the ordinary divisions, there is a division formed to give candidates for Second-year Honors instruction in Composition and Translation.

In Course 2, which is intended for Candidates for Honors, instruction is given by Lectures. There are three exercises a week, attendance on one of which, however, is voluntary.

LATIN.

*Sophomore Studies.*

1. *Literary Course.* Cicero, Laelius and Oration for Roscius Amerinus. — Horace, Satires. — Terence. *Twice a week.* 119 *Sophomores.* MR. GREENOUGH.
2. *Philosophical and Rhetorical Course.* Cicero, De Oratore, and Tusculan Disputations. — Horace, Ars Poetica. — Seneca (Selections). *Twice a week.* 42 *Sophomores.* MR. GREENOUGH.
3. *History of the Fall of the Republic.* Vellejus Paterculus. — Cicero's Epistles. — Caesar, de Bello Civili. — Horace, Epodes. — Lucan (Extracts). *Twice a week.* 25 *Sophomores*, 1 *Freshman*, 1 *Junior.* MR. EVERETT.

*Junior and Senior Studies.*

4. *Writers of the Empire.* Quintilian. — Pliny's Letters. — Juvenal.  
*Three times a week. 54 Juniors, 1 Senior.* PROF. LANE.
5. *Writers of the Republic.* Plautus. — Cicero. — Lucretius. — Catullus.  
— Exercises in writing Latin. *Three times a week. 17 Juniors, 24 Seniors.* PROF. LANE.
6. *History of the Empire, Tiberius to Domitian.* From Tacitus, Suetonius, Vellejus Paterculus, Seneca, Juvenal, Statius. *Three times a week. 9 Juniors, 3 Seniors.* PROF. LANE.
7. *Elements of Roman Law.* Huschke's Justiniani Institutiones. — De-mangeat's Droit Romain. *Three times a week. 14 Seniors.*

MR. BRANNAN.

In Course 1, in addition to the ordinary divisions, there is a division formed to give candidates for Second-year Honors instruction in Composition and Translation.

Under this head, for convenience, are also classed

## HEBREW.

- Hahn's or Theile's Biblia Hebraica. — Conant's Gesenius's Grammar.  
*Three times a week. 1 Sophomore, 4 Juniors, 8 Seniors.*

PROF. YOUNG.

## SANSKRIT.

- Grammar and Translation. *Three times a week. 1 Senior.*

MR. GREENOUGH.

## II. MODERN LANGUAGES.

## ENGLISH.

1. *Anglo-Saxon.* March's Anglo-Saxon Reader. — Corson's Hand-book of Anglo-Saxon and Early English. *Twice a week. 3 Sophomores.* PROF. CHILD.
2. *History and Grammar of the English Language.* *Three times a week. 10 Juniors.* PROF. CHILD.
3. *English Composition and English Literature.* *Three times a week. 30 Seniors.* PROF. CHILD.

## GERMAN.

1. *German Syntax and Composition.* — German Plays and Stories. *Twice a week. 117 Sophomores.* MR. HOWLAND.
2. *Schiller.* — German Composition. *Three times a week. 2 Sophomores, 85 Juniors.* PROF. HEDGE.
3. *German Classics.* — German Composition. *Three times a week. 1 Junior, 47-Seniors.* PROF. HEDGE.

## FRENCH.

1. Exercises in French Syntax and Composition. — Modern French Plays. *Twice a week.* 24 *Sophomores*, 1 *Junior*, 2 *Seniors*.

MR. JACQUINOT.

2. Molière. — Corneille. — Racine. — French Grammar and Composition. *Three times a week.* 7 *Sophomores*, 29 *Juniors*, 12 *Seniors*.

PROF. B CHER.

3. Brachet's Historical Grammar. — Rabelais. — Montaigne. — French Composition. *Three times a week.* 4 *Sophomores*, 16 *Juniors*, 6 *Seniors*.

PROF. BÔCHER.

- \*4. *Early and Norman French.* Chevallet, Origine et Formation de la Langue française. — Gérusez, Littérature française. — French Composition. *Three times a week.* 1 *Sophomore*, 3 *Juniors*.

PROF. BÔCHER.

## ITALIAN.

1. Prose Scelte. — Italian Grammar. — Italian Composition. *Twice a week.* 19 *Sophomores*.

ASST. PROF. NASH.

2. Nota's La Fiera. — A Manzoni. — Tasso. — Italian Composition. *Three times a week.* 2 *Juniors*.

ASST. PROF. NASH.

- \*3. Early Italian (Selections). — Dante. — Machiavelli. *Three times a week.* 8 *Seniors*. (In the absence of PROF. LOWELL)

ASST. PROF. NASH.

## SPANISH.

- Gil Blas. — Spanish Grammar and Composition. *Three times a week.* 3 *Sophomores*, 3 *Juniors*, 3 *Seniors*.

ASST. PROF. NASH.

## PHILOLOGY OF THE ROMANCE LANGUAGES.

- \*Provençal. — Early Italian, French, and Spanish. — Diez's Grammar. *Three times a week.*

PROF. BÔCHER.

No student is allowed to elect the \* courses unless he has a sufficient knowledge of Latin as well as of French or Italian.

## III. PHILOSOPHY.

*Sophomore Studies.*

- Jevons's Logic. — Hamilton's Metaphysics. *Twice a week.* 21 *Sophomores*.

MR. PALMER.

This course is the same as the Junior required course in Philosophy. Sophomores who elect this course are excused from the required course in Philosophy in their Junior year, and must take in its place an Elective having at least two exercises a week.

*Junior Studies.*

1. *Psychology.* Locke's Essay on Human Understanding (Selections). — Cousin, Philosophie Sensualiste and Philosophie de Locke. — Mill's Examination of Hamilton. — Lectures. *Three times a week.* 13 Juniors, 1 Senior. PROF. BOWEN.
2. *Ancient Philosophy.* Renouvier, Manuel de Philosophie Ancienne. — Ueberweg's History of Ancient Philosophy. — Nourrisson, Progrès de la Pensée Humaine. *Three times a week.* 1 Junior, 1 Senior. PROF. BOWEN.

*Senior Studies.*

3. *Schools of Descartes and Kant.* Bouillier, Histoire de la Philosophie Cartésienne. — Kant's Critique of Pure Reason. — Schwegler's History of Philosophy. — Lectures on French and German Philosophy. *Three times a week.* 1 Junior, 29 Seniors. PROF. BOWEN.
4. *Modern German Philosophy.* Reichlin-Meldegg's Einleitung zur Philosophie. — Schopenhauer's Die Welt als Wille und Vorstellung. — Fichte's Bestimmung des Menschen. *Three times a week.* PROF. BOWEN.
5. *Ethics.* Stewart's Philosophy of the Active and Moral Powers. — Cicero, De Officiis. — Lectures. *Three times a week.* 12 Seniors. PROF. PEABODY.

## IV. HISTORY.

*Sophomore Study.*

1. *Roman and Early Mediæval History.* — Mommsen's History of Rome. — Gibbon's Decline and Fall of the Roman Empire (Selections). *Twice a week.* 10 Sophomores, 2 Juniors. PROF. GURNEY.

To entitle a student to elect this course, he must anticipate the required Roman History of the Sophomore year, and pass a creditable examination on it at the beginning of the academic year.

*Junior Studies.*

2. *The General History of Europe from the Tenth to the Sixteenth Century.* *Three times a week.* 66 Juniors, 1 Senior.  
(In the absence of ASST. PROF. ADAMS) MR. WARNER.
3. *Mediæval Institutions.* (Advanced Course.) *Three times a week.* 9 Juniors, 2 Seniors.  
(In the absence of ASST. PROF. ADAMS) MR. AMES.

*Senior Studies.*

4. History of England to the Seventeenth Century. *Three times a week.* 14 Seniors. (In the absence of ASST. PROF. ADAMS) MR. AMES.
5. Modern History (Seventeenth Century and First Half of the Eighteenth). *Three times a week.* 35 Seniors, 2 Juniors. PROF. TORREY.
6. Modern History (from the Middle of the Eighteenth Century). *Three times a week.* 52 Seniors. PROF. TORREY.

## V. POLITICAL SCIENCE.

1. *Political Economy.* J. S. Mill's Political Economy. — McCulloch on Taxation. — Subjects in Banking and Currency. *Three times a week.* 65 Seniors. PROF. DUNBAR.
2. *Elements of Roman Law.* See the CLASSICS, Latin 7.

## VI. MATHEMATICS.

*Sophomore Studies.*

1. Differential and Integral Calculus; Elementary Course. (The Differentiation of all Analytic Functions, and the Integration of Simple Functions; Applications to Geometry of Two Dimensions, etc. — Lectures.) *Twice a week.* 30 Sophomores, 6 Freshmen, 7 Juniors. PROF. J. M. PEIRCE.
2. Spherical Trigonometry (Chauvenet's Trigonometry, with Seaver's Formulas). — Analytic Geometry (Salmon's Conic Sections, Chapters I. — III., V. — VII., X. — XIII.). — Elements of Analytic Geometry of Space. *Twice a week.* 2 Freshmen, 15 Sophomores, 1 Junior, 2 Seniors. ASST. PROF. SEAVER.
3. Practical Applications of Trigonometry. — Principles of Surveying. — Spherical Trigonometry. — Applications of Spherical Trigonometry to Astronomy and Navigation. *Twice a week.* 26 Sophomores, 5 Seniors. ASST. PROF. WHITE.

*Junior Studies.*

4. Differential and Integral Calculus; Second Course. (Functions of Complex, or Imaginary, Variables; General Theory of Series; Methods of Integration; Applications to Geometry of Three Dimensions, etc. — J. A. Serret, continued from 1871-72.) *Three times a week.* 1 Junior. PROF. J. M. PEIRCE.
5. Elementary Mechanics (Kerr). *Twice a week.* 2 Sophomores, 8 Juniors, 2 Seniors. PROF. J. M. PEIRCE.
6. The Theory of Equations (Lectures). *Once a week.* 10 Juniors, 5 Seniors. PROF. J. M. PEIRCE.

*Senior Studies.*

7. Analytic Mechanics (Peirce). *Three times a week.* PROF. B. PEIRCE.
8. Geometry of Three Dimensions and Quaternions. *Twice a week.*  
PROF. B. PEIRCE.
9. Differential and Integral Calculus ; Third Course. (Differential Equations, etc. — Lectures). *Three times a week.* PROF. J. M. PEIRCE.
10. Applications of the Calculus to Geometry of Three Dimensions.  
*Once a week.* PROF. J. M. PEIRCE.
11. Mathematical Astronomy (Gauss's Theoria Motus). *Three times a week.* ASST. PROF. SEAVER.

Course 2 is open to those only who pass a creditable examination in the Elements of Analytic Geometry, as early as the beginning of the academic year.

Courses 4, 5, 8, 10, and 11 require a knowledge of Analytic Geometry, Spherical Trigonometry, and the Elements of the Calculus ; but Course 5 can be taken simultaneously with Course 1, by students previously unacquainted with the Calculus. A sufficient knowledge of Spherical Trigonometry could easily be acquired in the vacation.

Courses 7 and 9 require a thorough knowledge of the Calculus, as well as of Analytic Geometry and Spherical Trigonometry.

A previous study of Course 5 is of advantage in Course 7.

Course 6 will be elementary ; and the portions of the Calculus required will be taught as a part of the Course. This course can be taken as an Extra, or as a part of a full Elective.

Course 3 will not be accepted as one of the grounds of Honors in Mathematics.

## VII. PHYSICS (INCLUDING CHEMISTRY).

## PHYSICS.

*Junior Studies.*

1. Astronomy and Acoustics. *Three times a week.* 20 Juniors.  
PROF. LOVERING.
2. Practical Exercises in the Laboratory, including the use of instruments of precision in testing the laws of Mechanics, Acoustics, Optics, Magnetism, and Electricity ; and an extended course in Electrical Measurements. *Three times a week.* 8 Juniors, 9 Seniors.  
ASST. PROFS. TROWBRIDGE and G. A. HILL.

*Senior Studies.*

3. Undulatory Theory of Light. — Electricity and Magnetism. *Three times a week.* 10 Seniors.  
PROF. LOVERING.



4. Heat, with its applications. *Three times a week.* 2 Seniors.

PROF. GIBBS.

Some knowledge of the Calculus will be required to enable a student to pursue Course 4.

#### CHEMISTRY.

##### *Sophomore Study.*

1. Descriptive Chemistry, with Laboratory Practice. — Cooke's Chemical Philosophy. *Twice a week.* 79 Sophomores.

ASST. PROF. JACKSON.

##### *Junior Study.*

2. Qualitative Analysis. *Three times a week.* 85 Juniors, 3 Seniors.

PROF. COOKE and MR. H. B. HILL.

##### *Senior Studies.*

3. Mineralogy, including Use of the Blowpipe, and Crystallography. *Three times a week.* 21 Seniors.

PROF. COOKE.

4. Quantitative Analysis (chiefly Laboratory Work). *Three times a week.* 12 Seniors.

PROF. COOKE and MR. MUNROE.

### VIII. NATURAL HISTORY.

##### *Sophomore Study.*

1. Physical Geography (Ansted), Meteorology (Loomis), and Structural Geology (Lyell's Students' Elements). *Twice a week.* 28 Sophomores, 1 Junior, 1 Senior.

PROF. PETTEE.

##### *Junior Studies.*

2. Botany. *Three times a week.* 14 Juniors, 1 Senior.

PROF. GRAY and DR. GOODALE.

3. Comparative Anatomy and Physiology. *Three times a week.* 28 Juniors, 25 Seniors.

DR. DWIGHT and DR. JAMES.

4. Zoölogy. *Three times a week.* 24 Juniors.

PROF. SHALER.

##### *Senior Studies.*

5. Historical Geology and Orography. *Three times a week.* 8 Seniors.

PROFS. WHITNEY and SHALER.

6. Zoölogy (Invertebrates). *Three times a week.* 10 Seniors.

PROF. SHALER.

7. Advanced Botany. *Three times a week.* 14 Seniors.

PROF. GRAY and PROF. GOODALE.

Course 2 must be taken by candidates for Honors in Natural History.

## IX. MUSIC.

1. *Harmóny.* — Counterpoint and Choral Figuration. — Simple forms of Free Composition. — Song, March, Dance, Prelude, etc. *Twice a week.* 3 *Sophomores*, 3 *Juniors*. MR. PAINE.
2. Imitative Counterpoint. — Canon. — Fugue (in two or three voices). — Free Composition (Thematic Treatment). *Three times a week.* 3 *Juniors*. MR. PAINE.

## DEGREE OF BACHELOR OF ARTS.

[Copied from the printed Regulations of the Faculty of Harvard College, Sections 10 - 12.]

10. Only such persons as have performed the work of the College course to the satisfaction of the Faculty shall be recommended for the degree of Bachelor of Arts; and the examinations in the College course (both final and special) constitute a series of examinations for that degree. Any student, however, who has not complied with the requisitions for a degree before the end of his Senior year, may be recommended for his degree in any subsequent year, on passing satisfactory examinations in the studies in which he was deficient.

11. Persons recommended for the degree of Bachelor of Arts shall be divided into two classes, — those recommended for an *ordinary* degree, and those recommended for a degree *with distinction*. Those only shall be recommended for a degree *with distinction* whose scholarship for the whole College course entitles them to a part at Commencement.\* This distinction shall be indicated in the diploma by the words *cum laude*.

12. Honors of two grades shall be awarded for special proficiency in any of the following departments: Classics; Modern Languages; Philosophy; History; Mathematics; Physics (including Chemistry); Natural History. The requisitions for Honors shall be announced by the Faculty from time to time, at least two years' notice being given to each Class. The department in which Honors are awarded, as well as the grade of the Honors, shall be stated in the diploma.

\* A part at Commencement is assigned to any student who attains *eighty hundredths* of the maximum mark for the whole College Course, or *eighty-seven hundredths* of the maximum mark for the Junior and Senior years combined.

## HONORS.

*A candidate for Special Honors* in any one of the following Departments — I. Classics, II. Modern Languages, III. Philosophy,\* IV. History,† V. Mathematics, VI. Physics (including Chemistry), or VII. Natural History‡—must have passed *with distinction* examinations: (1.) in all the required work of the College in that Department; (2.) if the Department be Classics or Mathematics, in two Electives in it in the Sophomore year; if it be Modern Languages, Physics, or Natural History, in one elective in it in the Sophomore year;‡ (3.) in two Electives in it in the Junior year; (4.) in three Electives in it in the Senior year.

In addition to these general requisitions, special requisitions may be made in any department. For example, in the Classics, the ability to write Greek and Latin prose, and to read ordinary Greek and Latin at sight will be required; in Modern Languages, a special examination will be required in French and German, and in one of the three languages, Italian, Spanish, English; this examination will include the writing of French or German, or of both; in Natural History, a thesis will be required; and in all Departments special investigations may be exacted. Every candidate for Honors must, at or near the close of the Senior year, pass an examination on the subjects in which he applies for Honors before a committee of the Faculty appointed for the purpose. This examination may be either oral, written, or by experimental work, as the committee shall determine.

Students who in previous years have not elected the regular number of courses, or have failed to pass any of the examinations with distinction, may, with the consent of the Faculty, make up their deficiencies by passing such additional examinations as may be required of them; but no such permission will be granted for work omitted after the beginning of the Senior year.

\* The Elective Political Economy may be taken as a part of the course for Honors either in Philosophy or History. Candidates for Honors in Philosophy may substitute Course 8 in Greek in place of one Elective in Philosophy.

† Candidates for Honors in History may substitute Latin 3 or Latin 7 in place of one Elective in History. Of candidates for Honors in History in 1875, likewise, one Elective in History or the Historical Elective in Latin will be required in the Sophomore year.

‡ Candidates for Honors in Natural History may substitute Course 3 in Chemistry in place of one Elective in Natural History.

Every student who desires to be regarded as a candidate for Honors must register his name at the Dean's office before the *first day of June* in his Junior year.

At Commencement, 1872, Honors were assigned to members of the Graduating Class, as follows : —

## IN CLASSICS.

*First-Class Honors.*

MERTON SPENCER KEITH,  
ALLEN WALTON GOULD,  
GEORGE HUNTINGTON GOULD,  
ALBERT LAMB LINCOLN.

*Second-Class Honors.*

FRANCIS EUGENE WHITNEY,  
GEORGE SCHUYLER BATES.

## IN MODERN LANGUAGES.

*First-Class Honors.*

EDWARD STEVENS SHELDON.

## IN PHILOSOPHY.

*Second-Class Honors.*

ARTHUR LORD.

## IN HISTORY.

*Second-Class Honors.*

HENRY AUGUSTUS MUHLENBERG,      EDWARD BELCHER CALLENDER,  
PERRY BELMONT.

## IN PHYSICS AND CHEMISTRY.

*First-Class Honors*

FRANCIS AUSTIN GOOCH.

*Second-Class Honors.*

ALFRED RAND.

## SECOND-YEAR HONORS

## IN THE CLASSICS AND IN MATHEMATICS.

The Faculty has established a grade of Honors in the Classics and in Mathematics, called *Second-Year Honors*, open both to Sophomores and to Juniors.

I. These Honors will be awarded in the *Classics* on two conditions. The first condition is distinguished excellence in the required classical

work of the Freshman year, and in the work of any two classical electives of the Sophomore or the Junior year. The second condition consists in passing with distinction a special examination : —

(a.) In the translation at sight of passages taken from the less difficult Greek and Latin authors.

(b.) In Greek and Latin Prose Composition.

(c.) Either in the Grammar and Comparative Philology of the Greek and Latin languages, or in Ancient History. This special examination will be held at some time near the close of the academic year.

II. Second-year Honors will be awarded in *Mathematics* on two conditions. The first condition is distinguished excellence in all the required mathematical work of the Freshman year, and in the work of the first and second mathematical electives of the Sophomore year, comprising the subjects of Plane and Solid Geometry, Algebra, the Theory and Use of Logarithms, Plane and Spherical Trigonometry, Analytic Geometry, and the Elements of the Differential and Integral Calculus. The second condition consists in passing with distinction a special examination, partly written and partly oral, which will involve a moderate amount of work additional to that comprised in the regular courses, and may be extended to cover the whole mathematical knowledge of the candidates. The special examination for Sophomores and Juniors of the present academic year will be held near the beginning of the next academic year.

For the Elective in Analytic Geometry, that in Elementary Mechanics, or the second Elective in the Calculus may be substituted.

These Honors will be given by the Faculty on the recommendation of a special committee of examiners, and the award will be printed in the annual catalogue.

After 1873 no one can be a candidate at graduation for Honors in the Classics or in Mathematics who has not previously taken Second-year Honors in the same department.

Candidates for Second-year Honors are required to register their names at the Dean's office as early as *the first of May* of each year. Candidates for the Classical Honors will designate at the same time which elective courses they intend to offer to satisfy the first condition as described above.

For the year 1872 Second-year Honors were assigned to the following students : —

## IN CLASSICS.

Rank.		Class I.	Class.
1.		AMBROSE CROSBY RICHARDSON . . . . .	Junior.
2.		WILLIAM RICHMOND . . . . .	Sophomore.
3.	{	EUGENE NELSON ASTON . . . . .	"
		LOUIS DYER . . . . .	"
		GEORGE WIGGLESWORTH . . . . .	"
6.	{	WILLIAM FITZHALE ABBOT . . . . .	"
		CHARLES CECIL CLARKE . . . . .	"
		ARTHUR WILLIAM FOOTE . . . . .	"

## Class II.

9.	{	HOSEA BALLOU MORSE . . . . .	"
		FREDERICK JOSEPH STONE . . . . .	"
		WILLIAM ROYALL TYLER . . . . .	"
12.	{	GIORGIO ANACLETO CORRADO BENDELARI . . . . .	"
		JAMES OTIS LINCOLN . . . . .	Junior.
		CHARLES FRANCIS WITHINGTON . . . . .	Sophomore.
		SAMUEL EDWIN WYMAN . . . . .	"

## Class III.

16.	{	CHARLES MONTREVILLE GREEN . . . . .	"
		CHARLES FRANKLIN KNOWLES . . . . .	"
		JAMES LAURENCE LAUGHLIN . . . . .	Junior.
		WILLIAM ICHABOD NICHOLS . . . . .	Sophomore.
20.	{	WILLIAM TAGGARD PIPER . . . . .	"
		GEORGE CLARENCE SHEPARD . . . . .	"
		JOHN PALMER WYMAN . . . . .	"

## PECUNIARY AID.

THE experience of the past warrants the statement that good scholars of high character but slender means are seldom or never obliged to leave College for want of money.

## SCHOLARSHIPS.

Eighty-seven Scholarships have been established in the College, varying in their annual income from forty dollars to three hundred :—

*Saltonstall Scholarships.* Two founded by Mary and Leverett Saltonstall, with an income of one hundred and fifty dollars each.

*Pennoyer Scholarships.* Four from the annuity of William Pennoyer ; two of them with an income of eighty-five dollars, and two with an income of seventy-five dollars each.

*Alford Scholarship.* Founded by Joanna Alford, in 1785, with an income of forty dollars.

*Abbot Scholarship.* Founded by persons educated at Phillips Exeter Academy, with an income of one hundred and fifty dollars.

*Scholarship of the Class of 1802.* Founded by the Class of 1802, with an income at present of one hundred and fifty dollars.

*Scholarship of the Class of 1814.* Founded by the Class of 1814, with an income of one hundred and fifty dollars.

*Kirkland Scholarship.* Founded by the Class of 1815, with an income at present of two hundred dollars.

*Scholarship of the Class of 1817.* Founded by the Class of 1817, with an income of two hundred dollars.

*Scholarship of the Class of 1835.* Founded by the Class of 1835, with an income of one hundred and fifty dollars.

*Shattuck Scholarships.* Eight from a bequest of Dr. George Cheyne Shattuck, with an income of one hundred and fifty dollars each.

*Walcott Scholarships.* Two from a bequest of Samuel Baker Walcott, with an income of one hundred dollars each.

*Thayer Scholarships.* Twelve founded by John Eliot Thayer, with an income of three hundred dollars each.

*Bowditch Scholarships.* Twenty-two with an income of two hundred and fifty dollars each, founded by a friend of the College.

*Townsend Scholarships.* Six with an income of two hundred and fifty dollars each, founded by Mary P. Townsend.

*Story Scholarship.* Founded by Augustus Story, with an income of one hundred and fifty dollars.

*Gorham Thomas Scholarship.* With an income of one hundred and fifty dollars.

*Bigelow Scholarships.* Three from a bequest of Tyler Bigelow, with an income of two hundred and fifty dollars each.

*Toppan Scholarship.* Founded by Mrs. Ann Toppan, with an income of three hundred dollars.

*Sever Scholarship.* Founded by James Warren Sever, with an income of one hundred and fifty dollars.

*Sewall Scholarships.* Two founded by Samuel Sewall, with an income of two hundred and fifty dollars each.

*Hollis Scholarships.* Two founded by Thomas and Nathaniel Hollis, with an income of one hundred and twenty-five dollars each.

*Browne Scholarship.* Founded by William Browne and his descendants, with an income of one hundred and fifty dollars.

*Scholarship of the Class of 1841.* Founded by the Class of 1841, with an income of about one hundred and twenty-five dollars.

*Morey Foundation.* From a bequest of George Morey, yielding about four hundred and fifty dollars, which may be divided into two Scholarships.

*Matthews Scholarships.* Ten founded by Nathan Matthews, with an income of three hundred dollars each.

None but those who need assistance are expected to apply for Scholarships ; and among applicants the highest scholars on the work of the preceding year have the preference. The assignment of some of the Scholarships, however, is affected by special provisions.

No student who has incurred a serious college censure in the course of the year will be considered a candidate for a Scholarship.

Applications from persons who wish to be considered candidates will be received *on or before the first day of June* of each year. The nominations and appointments are made at the end of each academic year, as soon as the scales of rank for the year are prepared ; except that the Bigelow Scholarships are awarded by the Corporation to Freshmen soon after their entrance. The successful candidates for other Scholarships receive one third of the annual income immediately upon the assignment of the Scholarships and the remaining two thirds on the first of April following. The Scholarships for the Senior Class are assigned before Commencement, as soon as the annual scale for that class can be prepared, and the entire annual income of the Scholarships so assigned is paid immediately.

The Scholarships, when voted, are understood to cover the College year just ended ; but the enjoyment of a Scholarship for one year will



not constitute any title to a second nomination, unless the superiority for which it was originally awarded be fully maintained.

### BENEFICIARY FUNDS.

Various other bequests and donations to the College have from time to time been made, the income of which is appropriated for the aid of deserving students in narrow circumstances. The annual amount thus appropriated is about seven hundred and fifty dollars, which has usually been distributed in gratuities ranging from fifty to one hundred dollars.

Applications for aid from the Beneficiary Fund are addressed to the Dean, and must be presented to him on or before *the first day of June*, by the student's parent or guardian, or by the student himself if of age. The application should state particularly the circumstances of the case, with the reasons for asking aid.

### LOAN FUND.

In addition to the Beneficiary Funds above mentioned, there is a Loan Fund, the interest of which, amounting annually to more than two thousand dollars, is lent to meritorious students desirous of receiving it, in sums ranging from fifty to one hundred and fifty dollars. This fund is under the control of a Board of Trustees, in Boston; Hon. John Lowell, Treasurer. More than eight thousand dollars have been already added to the principal by reimbursements.

The applications for the Loan Fund should be left with the Dean as early as *the first day of February*.

"The trustees of the fund for assisting students at Harvard College request applicants for loans to observe the following rules:—

"1. To address their applications to the Treasurer of the Loan Fund, Hon. John Lowell, Boston," and give them to the Dean.

"2. To set forth their circumstances fully, as they would do on making application to an individual for like aid.

"3. To state what aid they have received, or expect to receive, from the College.

"4. If an applicant is under twenty-one years of age, his application must be accompanied by the written approval of his parent or guardian."

### MONITORSHIPS, ETC.

Besides the foregoing provisions for the aid of meritorious students, the various monitorships, etc., amount to about twelve hundred dollars a year, which may be considered an addition, to that extent, to the beneficiary means of the College.

## PRIZES.

## I. DETURS.

A DISTRIBUTION of books called *Deturs* is made from the income of the Hopkins Foundation, near the commencement of the academical year, to meritorious students of one year's standing. Forty-one *Deturs* were given in the Freshman Class, one in the Sophomore Class, and one in the Junior Class, the last year.

*Deturs* are also given to such members of the Junior Class as, not having received them in the Sophomore year, shall, in the course of that year, make decided improvement in scholarship.

## II. BOWDOIN PRIZE DISSERTATIONS.

EIGHT PRIZES will be assigned from the Foundation of James Bowdoin, as follows, provided so many Dissertations or Translations be deemed worthy of prizes by the judges :—

I. A prize of *one hundred dollars* for the best Dissertation by a Resident Graduate of the University, or by a member of the Senior Class of 1872-73, on any of the subjects for Dissertations mentioned below.

II. Three prizes of *fifty dollars each* for the best Dissertations by members of the Senior or Junior Class of 1873-74, on any of the following subjects :—

1. The Influence of Kant on the Physical, Metaphysical, and Theological Speculations of the Present Day.

2. The Financial and Social Results of the Payment of the French Indemnity.

3. The Rule of the Stuarts compared with that of the Bourbons.

4. The Displacement or Migration of Populations and Races in Antiquity or the Middle Ages.

5. The Grounds on which some Plays of Shakespeare have been supposed to be wholly or in part Spurious.

III. Two prizes of *fifty dollars each* for the best Dissertations or Translations, by members of the Senior or Junior Class of 1873-74, on any of the following subjects :—

1. Plato's Relation to the Sophists (English Essay).

2. The chief Changes in the Vocabulary and Syntax of Latin Prose between 60 B. C. and 100 A. D. (English Essay).

3. De studiis grammaticis apud Romanos (Latin Essay).

4. A Translation into Latin from Irving's Columbus, Book III., Chapter IV., to the sentence, "*The crews now sank into a degree of dejection.*"

5. A Translation into Attic Prose of the passage from the Review of Grote's History of Greece, — Edinburgh Review, October, 1853, — beginning, "*In political and social organization,*" through "*comedies of Aristophanes.*"

(To be found also in Mill's Dissertations and Discussions. Boston edition, Vol. III., pp. 201–205.)

IV. Two prizes of *fifty dollars each* for the best Dissertations by members of the Senior or Junior Class of 1873–74, on any of the following subjects:—

1. Recent Progress in the Synthesis of Organic Compounds.

2. Scientific Use of the Imagination.

3. The Weather and Weather Prophets.

4. The Law of Mariotte, the Law of Charles, and the Law of Avogadro: Consider both the History of these laws, and their relations to Molecular Physics and Chemistry.

Dissertations offered by *Seniors of 1872–73* for the first prize *must* be deposited with the Dean on or before Commencement, 1873. All other Dissertations for these prizes *must* be deposited with the Dean on or before the *first day of November*, 1873. The title-page must, with an assumed name, state the standing of the writer, as Graduate or Undergraduate, and if the latter, of what class. A sealed letter must be sent in at the same time, under cover with the Dissertation, containing the true name of the writer, and superscribed with his assumed name.

The Dissertations must be written upon letter-paper of good quality, of the quarto size, with a margin of not less than one inch at the top and bottom, and on each side, so that, if successful, they may be bound up without injury to the writing. The sheets on which the Dissertation is written must be securely stitched together.

No Dissertation to exceed in length the amount of twenty-five printed pages of the North American Review.

The prizes for the last Academical Year were assigned as follows:—

*Resident Graduate.*

TO CHARLES LEAVITT BEALS WHITNEY.

COMMITTEE. — Chauncey Wright, Esq., William James, Esq., and Prof. Ellis Peterson.

*Class of 1872.*

TO ALLEN WALTON GOULD, *a First Prize.*

COMMITTEE. — Prof. Wolcott Gibbs, Prof. Joseph Winlock, and Prof. Josiah P. Cooke.

*Class of 1873.*

TO CHARLES THEODORE RUSSELL, *a Second Prize.*

COMMITTEE. — Prof. J. L. Diman, J. Elliot Cabot, Esq., and Prof. Henry Adams.

## III. BOYLSTON PRIZES FOR ELOCUTION.

On the day before Class Day in each year there is a public exhibition and trial of the skill and proficiency of the Students of the College in elocution, at which the Boylston Prizes are awarded.

The speakers are not to rehearse their own compositions ; but to select pieces in prose or verse from English, Greek, or Latin authors, the selections to be approved by the Boylston Professor of Rhetoric and Oratory. The proportion in English is to be at least two out of three.

The competitors must be Graduates of the year, or Undergraduates of one of the next two Classes ; and their names must be entered with the Professor, at the latest, *fourteen days* before Class Day. No applications will be received after that time.

The Corporation and five gentlemen selected by the corporation, will act as judges and award the prizes as follows : —

Two First Prizes, of *sixty dollars* each ; and three Second Prizes of *forty-five dollars* each. The First Prizes may be withheld if none of the competitors appear to deserve them. .

At this exhibition, no prompting of the speakers will be allowed ; and a failure of memory in any one will exclude him from being considered in the assignment of the prizes.

The following prizes were assigned, June 20, 1871 : —

*The Two First Prizes.*

TO GEORGE RIDDLE, *of the present Junior Class.*

TO ERNEST FRANCISCO FENOLLOSA, *of the present Junior Class.*

*The Three Second Prizes.*

TO ARTHUR HOWARD PICKERING, *of the present Junior Class.*

TO RICHARD HENRY DANA, *of the present Junior Class.*

TO GEORGE WIGGLESWORTH, *of the present Junior Class.*

## IV. LEE PRIZES FOR READING.

Five Prizes of \$25 each, and five of \$15 each, are annually awarded to Freshmen for excellence in reading aloud English prose ; provided that in each case as many as five competitors are deemed worthy of Prizes.

At the last trial Prizes were awarded as follows :—

*First Prizes.*

TO THEODORE CLAUDIUS PEASE,  
JOSEPH WILBY.

*Second Prizes.*

TO JOHN BRAZER DRAPER,  
WILLIAM HENRY HOLMAN,  
WALDO BURNETT,  
CHARLES WHITMAN WETMORE,  
LESTER WILLIAMS CLARK.

*Members of the present Sophomore Class.*

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PUBLIC WORSHIP.

THERE are daily devotional services in Appleton Chapel, at which all Undergraduates of the College are required to be present. Undergraduates are permitted to pass Sundays with their families, or with families designated by their parents or guardians. Undergraduates who do not pass Sundays with their families are required to attend public worship once on Sunday. Each student may select his own place of worship if he be of age ; if he be a minor, the selection is to be made by his parent or guardian. Seats are provided at the expense of the College for all Undergraduates who attend the Sunday services of the several religious denominations having established places of worship in the immediate vicinity of the College.

## EXPENSES.

THE expenses of an Undergraduate for a year are as follows : —

Instruction, Library, Lecture-rooms, Gymnasium, etc.,	\$ 150.00	\$ 150.00
Rent and care of Room, in the College Buildings		
(with chums), . . . . .	from 30.00 to 100.00	
Board for 38 weeks, . . . . .	“ 152.00 “ 304.00	
Text-books (average), . . . . .	“ 20.00 “ 25.00	
Special Repairs, etc., . . . . .	“ 1.00 “ 2.00	
Total . . . . .	“ \$ 353.00 “ \$ 581.00	

Other expenses must vary with the economy of each student. Wood and coal ready for use are delivered at the students' rooms, by Cambridge and Brighton dealers, at market prices. The rent of furnished rooms in private houses in the immediate vicinity of the College is from \$ 75 to \$ 250 per annum. By going half a mile from the college the student may get cheaper rooms. The price of board at present is from \$ 4.00 to \$ 8.00 a week. The Thayer Club enables Undergraduates to board at cost. Students living in College buildings find their own beds and furniture.

## COLLEGE BILLS.

The bills containing College charges are made out by the Steward, and are to be called for at his office. The first bill, which will include two thirds of the annual charges, will be ready for delivery on March 15, and is to be paid on or before April 5. The second bill, which will include one third of the annual charges, will be ready for delivery one week before Commencement, and is to be paid on or before October 10 ; but the second bill of the *Senior year* must be paid at least one day before Commencement.

The Steward is authorized to make the following deductions from the full year's tuition fee in Harvard College, in cases of absence during part of the year, without regard to the cause of absence : —

For absence from the beginning of the year until April 1, \$ 75 to be deducted.

For absence for three months or more between the beginning of the year and April 1, \$ 50 to be deducted.

For absence from April 1, to the end of the year, or to the annual examinations in June, \$ 25 to be deducted.

For absence for the whole year except the examinations, \$ 100 to be deducted.

Students claiming deductions as above must file at the Steward's office a certificate from the Dean as to the fact and duration of absence.

#### ASSIGNMENT OF COLLEGE ROOMS FOR 1873-74.

Students living in College Buildings, who wish to re-engage for the Academic Year 1873-74, their present rooms, must call at the Steward's office, sign a new room-agreement, and take a new certificate of assignment *before April 1, 1873.*

On April 1 will be made out a list of college rooms, not re-engaged as above, for which members of the College and of the Scientific and Mining Schools can apply. This list will be printed, and will be given to all who ask for it at the Steward's office after April 5. Blank forms of application for rooms will be given out at the same time, and no applications will be considered unless made upon such blanks. Undergraduates and members of the Scientific and Mining Schools who wish to apply for rooms must drop their applications into the Steward's letter-box *before April 15, 1873.* On April 15 the assignment of rooms will be made, absolutely by lot. The experiment, tried last year, of allowing students to retain their old rooms conditionally, on failure to get others which they prefer, will be discontinued, as it has been found impracticable. Public notice of the result of the allotment will be given as soon as possible, and no student will be entitled to the room assigned to him unless the agreement covering the whole rent of the room shall have been signed at the Steward's office, and a certificate of assignment taken *before April 25, 1873.*

On April 25 will be made out a list of rooms available for persons intending to enter College in the summer of 1873. This list will be printed, and with blank forms of application, and price-lists, will be ready for delivery from the Steward's office after May 1, 1873. Upon request, the list and blanks will be mailed to any address. Applications on these blanks must be sent, by mail or otherwise, to the Steward of the College *before May 15, 1873.* On May 15 the allotment will be made. Applicants will be notified as soon as possible of the result of the allotment, and a blank form of agreement and bond will be forwarded at the same time. No applicant will be entitled to the room assigned to him unless the agreement and bond shall be duly executed and delivered at the Steward's office *before June 1, 1873.* This agreement binds the applicant

to retain his room for one year, and pay the full rent in case he enters College ; and in case of failure to enter College, to transfer the room at the Steward's office to some other member of the College, or to forfeit one quarter's rent.

After June 1, 1873, vacant rooms will be assigned according to priority of application.

Students are advised not to engage rooms until they have fully decided that they wish to occupy them, as the College rules require every student who engages a room to pay the full year's rent whether he uses the room or not. The Steward is authorized to make exceptions to this rule only in the following cases : 1st, where the tenant substitutes for his own a new room-agreement, covering the full year's rent, and signed by some member of the College who has no other room ; 2d, where the tenant permanently takes up his connections with the college before the beginning of the academic year for which the room was assigned, or before the beginning of that year obtains a leave of absence, or is suspended for the whole of that year. In such cases the student must at once notify the Steward that he wishes to cancel his room-agreement. In case of chums, when one cancels his room-agreement as above, the agreement of the other will be considered as cancelled also. The remaining chum will be allowed, by at once signing a new room-agreement, to engage the room alone or with a new chum, but if he does not at once re-engage it the Steward will be at liberty to assign it to other tenants.

Within reasonable limits the college rules allow transfers of rooms, and exchanges of rooms allotted for rooms of about equal value left vacant after allotment. But all such transfers and exchanges must be made at the Steward's office before the beginning of the academic year, as the full year's rent and all charges for gas or damages will be collected from those to whom the rooms stand charged on the Steward's books at the beginning of the year. In cases of transfers or exchanges not made as above, the necessary money settlements must be made by private agreement between the students.



## PRICES OF COLLEGE ROOMS

*For the Academic Year 1873-74.*

In each case the price is for the whole room for one year, and includes the daily care of the room. Rooms in Divinity Hall are rented to Divinity students for \$5 less than the prices named below.

- \$44. Hollis and Stoughton, Nos. 1, 2, 3, 4, 17, 18, 19, 20.
- \$45. College House, Nos. 13, 35, 57.
- \$50. College House, Nos. 22, 44, 66; Divinity Hall, Nos. 6, 8, 10.
- \$55. Divinity Hall, Nos. 4, 12.
- \$56. Hollis, Nos. 13, 14, 16, 30, 31, 32; Stoughton, Nos. 13, 14, 16.  
 { Hollis and Stoughton, Nos. 5, 6, 8, 9, 10, 12, 22, 23, 24, 26, 27,  
 28; College House, Nos. 3, 4, 7, 8, 9, 10, 15, 16, 18, 19,  
 20, 25, 26, 27, 28, 29, 30, 31, 32, 37, 38, 39, 40, 41, 42, 46, 48,  
 50, 52, 54, 60, 62, 64, 70; Divinity Hall, Nos. 2, 3, 11, 14,  
 20, 22, 24, 34, 38.
- \$60. {
- \$65. Divinity Hall, Nos. 1, 13, 18, 19, 21, 23, 26, 28, 32, 33, 37, 40.
- \$70. { College House, Nos. 11, 12, 33, 34, 47, 49, 51, 53, 59, 61, 63,  
 67, 68, 69; Divinity Hall, Nos. 17, 25, 31, 39.  
 Hollis, Nos. 11, 15, 25, 29; Stoughton, Nos. 11, 15, 25; College  
 House, Nos. 1, 2, 21, 23, 43, 45, 55, 65; Divinity Hall, Nos.  
 16, 27, 30, 41; Grays, Nos. 3, 13, 15, 17, 19, 33, 35, 37, 49,  
 51; Weld, Nos. 25, 26, 52, 53.
- \$75. {
- \$80. Divinity Hall, Nos. 15, 29.
- \$100. { Grays, Nos. 1, 7, 11, 14, 18, 21, 23, 25, 27, 29, 31, 34, 39, 41,  
 45; Weld, Nos. 24, 27, 51, 54; Matthews, Nos. 27, 28, 57,  
 58; Wadsworth House, Nos. 9 and 10, 11 and 12.
- \$125. { Grays, Nos. 2, 9, 16, 22, 26, 30, 36, 40, 47, 50, 52; Matthews,  
 Nos. 25, 26, 29, 30, 55, 56, 59, 60; Holyoke, Nos. 1, 2.
- \$150. { Grays, Nos. 4, 6, 8, 10, 12, 20, 28, 32, 38, 42, 44, 46, 48; Hol-  
 worthy, Nos. 1, 9, 10, 17, 18; Holyoke, Nos. 3, 11, 39, 40,  
 44, 45; Thayer, Nos. 17, 18, 19, 20.
- \$175. { Thayer, Nos. 23, 24, 30, 35, 36, 41, 42, 47, 48, 53, 59, 60, 65,  
 66; Weld, Nos. 3, 5, 8, 13, 14, 19, 20, 30, 32, 34, 35, 40, 41,  
 46, 47; Holyoke, Nos. 12, 28, 29, 34.
- \$200. { Thayer, Nos. 1, 2, 3, 4, 5, 6, 8, 9; 10, 11, 12, 13, 14, 15, 16,  
 21, 22, 25, 26, 27, 28, 31, 32, 33, 34, 37, 38, 39, 40, 43, 44,  
 45, 46, 49, 50, 51, 52, 55, 56, 57, 58, 61, 62, 63, 64, 67, 68;  
 Holyoke, Nos. 4, 5, 6, 7, 8, 12, 13, 14, 15, 16, 19, 21, 22,  
 23, 24; Matthews, Nos. 3, 4, 10, 16, 22, 33, 34, 46, 52; Hol-  
 yoke, Nos. 7, 17, 18, 22, 23, 37, 41, 42, 43, 46, 47; Wads-  
 worth House, Nos. 5 and 6, 7 and 8, 13, 14.
- \$225. { Weld, Nos. 4, 6, 9, 12, 15, 18, 21, 22, 23, 31, 33, 39, 42, 45,  
 48, 49, 50; Matthews, Nos. 5, 6, 9, 15, 19, 20, 21, 39, 45,  
 49, 50, 51; Holyoke, Nos. 26, 30, 31, 32, 35, 36.
- \$250. { Weld, Nos. 1, 2, 10, 11, 16, 17, 23, 29, 37, 38, 43, 44; Mat-  
 thews, Nos. 1, 2, 8, 13, 14, 23, 24, 31, 32, 35, 36, 37, 38, 43,  
 44; Holyoke, Nos. 4, 9, 10, 13, 14, 15, 20, 21, 24, 25, 38.
- \$275. { Matthews, Nos. 53, 54; Holyoke, Nos. 8, 19.
- \$300. { Matthews, Nos. 11, 12, 17, 18, 41, 42, 47, 48; Holyoke, Nos.  
 5, 16, 27; Wadsworth House, Nos. 1 and 2, 3 and 4.

# DIVINITY SCHOOL.

## FACULTY.

CHARLES W. ELIOT, LL.D., *President.*

OLIVER STEARNS, D.D., *Dean and Professor of Theology.*

EZRA ABBOT, D.D., LL.D., *Professor of New Testament Criticism and Interpretation.*

EDWARD J. YOUNG, A. M., *Professor of Hebrew.*

CHARLES C. EVERETT, D.D., *Professor of Theology.*

JAMES JENNISON, A. M., *Librarian.*

STACY BAXTER, *Instructor in Elocution.*

GEORGE T. DIPPOLD, *Instructor in German.*

## DIVINITY STUDENTS.

### Senior Class.

NAME.	RESIDENCE.	ROOM.
Lyon, William Henry, A. B. ( <i>Brown Univ.</i> ),	Fall River,	D. 29.
Mullett, Alfred Edson,	Charlestown,	D. 27.
Thacher, Francis Storer, A. M. ( <i>Bowdoin College</i> ),	West Newton,	D. 15.
Vance, George Hamilton,	Birkenhead, Eng.,	D. 31.

### Middle Class.

Barrows, Samuel June,	Washington, D. C.,	D. 30.
Hornbrook, Francis Bickford, A. B. ( <i>Ohio Univ.</i> ),	Wheeling, Va.,	D. 42.
Seward, Josiah Lafayette, A. M.,	Keene, N. H.,	D. 21.
Sheafe, Joseph Pease, A. B. ( <i>Tufts Coll.</i> ),	Charlestown,	D. 32.

### Junior Class.

Brooks, John Graham,	Acworth, N. H.,	D. 39.
Dunbar, Josiah Newell,	Roxbury,	D. 40.
Haskell, Nahum Adolphus,	Harvard,	D. 25.

## SPECIAL STUDENTS.

Collins, James Kalkyard,	<i>Mossley, Lancashire, Eng.,</i>	D. 2.
Ford, John,	<i>Arcanum, Ohio,</i>	D. 33.
Harris, George,	<i>Boston,</i>	D. 3.
Hayward, Edward Farwell,	<i>North Sudbury,</i>	D. 16.
Houghton, Moses Henry,	<i>Stowe, Vt.,</i>	D. 6.
Robinson, William Henry,	<i>Rockport, Me.,</i>	C. 40.
Wardwell, Virgil Paris,	<i>Bucksport, Me.,</i>	D. 23.
Wright, George Franklin,	<i>South Walpole,</i>	D. 19.

## RESIDENT GRADUATE.

Thacher, Ralph Partridge Emelius, A. M., <i>Yale Coll.,</i>	D. 17..
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## TERMS OF ADMISSION.

Candidates for admission to the Divinity School are expected to present themselves on the first day of the academic year. If unknown to the Faculty, they are to produce testimonials of their moral and serious character.

All Bachelors of Arts will be admitted without examination. Other candidates for admission to the full course must have received a good English education, and must also pass an examination in some of the Latin classical authors, and in the Greek Text of the Gospels.

Any person competent to pursue to advantage the partial course, will be admitted simply on producing satisfactory evidence of character and promise.

Candidates for admission to an advanced standing must be acquainted with the studies previously pursued by the class which they propose to enter.

## COURSE OF INSTRUCTION.

The course of instruction comprises Lectures, Recitations, written Essays, and other exercises, on all the subjects usually included in a system of Theological Education, embracing, —

The Hebrew Language ;

The Principles of Criticism and Interpretation ;

The Literature, Canon, and Exegesis of the Old and New Testaments ;

Biblical Archæology and Geography ;

Natural Religion and the Evidences of Revealed Religion ;

The Philosophy of Religion ;

Systematic Theology ;

Philosophical and Christian Ethics ;  
 The Ethnic Religions, and the Creeds of Christendom ;  
 Ecclesiastical History, and the History of Christian Doctrine ;  
 Church Polity and Administration ;

The Composition and Delivery of Sermons ; Liturgies and the offices of Public Worship ; and the duties of the Pastoral Office.

In Elocution Mr. Stacy Baxter gives instruction three half-days in each week.

The devotional services, which are held daily in the chapel of Divinity Hall, are attended by the Professors and students. The members of the several classes have exercises in the practice of Extemporaneous Speaking, and the members of the Middle and Senior Classes preach in turn in the chapel.

Students are entitled to receive instruction from the Instructor in the German Language, and to attend, free of expense, all public lectures given to Undergraduates in the Academical Department. They have access to the Divinity Library, which consists of 16,000 volumes, and also to the College Library, which consists of 134,000 volumes.

The Full Course occupies three years, on completing which to the satisfaction of the Faculty students are entitled to a certificate of graduation.

Students may be admitted to the School for a period of not less than one year, who shall pursue such studies as the Faculty may prescribe, and receive a certificate stating the length of time they have studied in the School, or, on examination, a certificate of graduation.

Students may remain, after completing their course, and continue their studies during a fourth year under direction of the Faculty.

### DEGREE.

Four weeks before Commencement, applicants for the degree of *Bachelor of Divinity* must present their names, with a Theological Thesis, to the Faculty, and must be prepared to be examined at such times as may be appointed by the several Professors. This degree will be conferred by the University on those students who shall have pursued a course of Theological study at the Divinity School for at least one year, provided they pass the required examination. And after the Commencement of 1874 no certificate of graduation will be issued in any other form. The degree will also be conferred on former graduates, provided they pass the required examination.

This examination will be both oral and written, —

In the Hebrew, Greek, Latin, and German languages, including translations from portions of the Pentateuch and Psalms, from the New Testa-

ment in Greek, from the Vulgate in Latin, and from some standard work of Theology in German ;

In the Literature and Exegesis of the Old and New Testaments ;

In the History of the Church antecedent to the Reformation ;

In the History and Grounds of Opinion in Natural Theology and Christian Doctrine, and in the External and Internal Evidences of Christianity ;

In the Philosophy of Religion ;

In the History of Ethnic Religions ;

In the History and Principles of Moral Science, and the Ethics of Christianity ;

In Homiletics, Liturgies, Church Organization and Government.

### PECUNIARY AID.

Pecuniary aid is afforded from various sources.

The Hopkins Fund is administered by a Board of Trustees, and the income is awarded to six students, who must need aid, who must have received the degree of A. B. or A. M., and have given evidence of faithful and successful study. The shares will probably amount to at least three hundred and fifty dollars each.

The income of the Williams Fund is awarded by the Society for Promoting Theological Education to students recommended by the Faculty who comply with the requisitions of that Society. According to the terms of this bequest, the income is to be given to "such indigent students as shall be preparing themselves for the ministry, and shall be deemed most meritorious and worthy of assistance" ; and "no student shall be debarred of this charity by reason of not having had a degree at a college, or being educated at any other college, or entertaining any peculiar modes of faith, it being always understood that he must be a Protestant. The annual income of the Williams Fund will allow about one hundred and fifty dollars to each beneficiary, but the sum will vary with the number of candidates. There are also scholarships and other beneficiary funds which are awarded by the Corporation and Faculty.

The Scholarships are, —

The CHAPMAN SCHOLARSHIP, founded by the Rev. George Chapman with an income of one hundred and forty dollars.

Two CARY SCHOLARSHIPS, founded by Thomas Cary, Esq., with an income of one hundred and seventy-five dollars each.

Three SCHOLARSHIPS ON THE JACKSON FOUNDATION founded by Miss Sarah Jackson, with an income of two hundred and sixty dollars each.

The CLAPP SCHOLARSHIP, founded by Josiah Clapp, Esq., with an income of one hundred and twenty-five dollars.

The KENDALL SCHOLARSHIP, founded on the donation of Miss Nancy Kendall, with an income of one hundred and forty dollars.

The JONAS H. KENDALL SCHOLARSHIP, founded by Jonas H. Kendall, Esq., with an income of one hundred and forty dollars.

In some cases beneficiary aid from more than one of the above sources may be given to a single student.

In special cases some assistance from other sources may be obtained for students who give promise of usefulness.

The constitution of the Society for Promoting Theological Education in Harvard University, framed and adopted by the founders of the Divinity School, requires that the funds of the school shall be appropriated "to assist young men of competent talents, pure morals, and piety, in preparing themselves for the Christian ministry"; and it prescribes that "every encouragement be given to the serious, impartial, and unbiassed investigation of Christian truth, and that no assent to the peculiarities of any denomination of Christians shall be required either of the Instructors or Students."

### BONDS AND EXPENSES.

Students are required to reside in or near Divinity Hall. They must give bonds in the sum of two hundred dollars to the Steward, signed by two bondsmen, one of whom must be a citizen of Massachusetts, for the payment of term-bills. A copy of the class-books, with the exception of the Hebrew and Greek Scriptures, will be furnished on loan.

The necessary expenses for the year are :—

For rent and care of room . . . . .	\$60.00
For tuition . . . . .	50.00
For board at \$3.50 a week . . . . .	133.00
For fuel . . . . .	25.00
	<hr/>
	\$268.00

To which are to be added the expenses of washing and lights.

Each room is supplied with a bedstead, mattress, bureau, and table. Stoves and other furniture must be provided by the occupant. Washing is done for seventy-five cents per dozen pieces. It is probable that the price of board will not much exceed three dollars and a half per week at the Club which has been formed among the students. The price in boarding-houses varies from five to eight dollars per week.

# LAW SCHOOL.

## FACULTY.

CHARLES W. ELIOT, LL. D., *President.*

CHRISTOPHER C. LANGDELL, A. M., *Dean, and Dane Professor of Law.*

EMORY WASHBURN, LL. D., *Bussey Professor of Law.*

———, *Royall Professor of Law.*

## LECTURERS.

BENJAMIN R. CURTIS, LL. D.

GEORGE T. BIGELOW, LL. D.

BENJAMIN F. THOMAS, LL. D.

CHARLES S. BRADLEY, LL. D.

NICHOLAS ST. JOHN GREEN, LL. B.

JOHN C. GRAY, JR., A. M.

OLIVER W. HOLMES, JR., LL. B.

JOHN HIMES ARNOLD, *Librarian.*

## STUDENTS.

### Resident Bachelors of Laws.

NAME	RESIDENCE	ROOM.
Ames, James Barr, A. M., LL. B.,	Boston,	H'ke 33.
Brannan, Joseph Doddridge, A. M.,		
LL. B.,	Cincinnati, O.,	C. 17.
Cole, John Hanum, A. B., LL. B.,	Cambridge,	Ash St.
Fessenden, Franklin Goodridge,		
LL. B.,	Fitchburg,	G. 24.
Myers, James Jefferson, A. M.,		
LL. B.,	Frewsbury, N. Y.,	13 Little's Block.

### Second Year's Students.

Adams, Edward Mills, A. B. ( <i>Mich.</i>	
<i>Univ.</i> ),	Grand Rapids, Mich., D. 41.
Bergen, James Cornelius,	Brooklyn, N. Y., 48 Brattle St.
Brackett, William Starr,	Chicago, Ill., 890 Main St.

Bush, Harry Powell, A. B. ( <i>Brown Univ.</i> ),	Providence, R. I.,	52 Brattle St.
Chesbrough, Ellis Sylvester, A. B. ( <i>Univ. Chicago</i> ),	Chicago, Ill.,	104 Brattle Sq.
Connell, Allison Barlow, A. B. ( <i>Univ. N. B.</i> ),	Woodstock, N. B.,	39 Brattle St.
Conrad, Henry Clay,	Wilmington, Del.,	45 Mt. Auburn St.
Cutler, Nathan,	Cambridge,	42 Brattle St.
Dickson, Martin Thomas, A. B. ( <i>Georgetown Coll., D. C.</i> ),	St. Louis, Mo.,	30 Mt. Auburn St.
Dodge, William Walter, A. B.,	Cambridge,	72 Sparks St.
Ela, Richard, A. B.,	Cambridge,	13 Ash St.
Evans, Pierce,	Oakland, Cal.,	7 Gerry St.
Geldert, John Morris,	Halifax, N. S.,	39 Brattle St.
Glezen, Edward Knight, A. M. ( <i>Brown Univ.</i> ),	Providence, R. I.,	19 Hilliard St.
Hagar, Eugene Bigelow, A. B.,	Boston,	Boston.
Harrington, Charles Nelson, A. B. ( <i>Brown Univ.</i> ),	Providence, R. I.,	25 Mt. Auburn St.
Healey, Joseph, A. B.,	Boston,	Boston.
Hildreth, Arthur,	Boston,	100 Mt. Auburn St.
Jose, Edwin Henry,	Biddeford, Me.,	826 Main St.
Lathrop, Gardiner, A. M. ( <i>Yale Coll.</i> ),	Kansas City, Mo.,	Boston.
Martin, William Hemermann,	Clermontville, Pa.,	55 Columbia St.
Mehner, Edwin Louis,	Cincinnati, O.,	6 Mt. Auburn St.
McCleave, Dwight,	Cumberland, Md.,	Boston.
McGrew, George Harrison, A. B. ( <i>Wesleyan Univ., Ct.</i> ),	Kingwood, West Va.,	Boston.
Norcross, Otis, A. B.,	Boston.	Boston.
Orcutt, William Hunter, A. M.,	Cambridge,	W. 7.
Parkman, Henry, A. B.,	Boston,	M. 40.
Ruddell, Thomas Cicero,	Philadelphia, Pa.,	
Titcomb, Lendall, A. B.,	Augusta, Me.,	C. 2.
Vaughan, William Warren, A. B.,	Cambridge,	Craigie St.
Warner, Joseph Bangs, A. M.,	Cambridge,	T. 29.
Weston, Byron Arthur,	Dartmouth, N. S.,	39 Brattle St.
Wharton, William Fisher, A. B.,	Boston,	410 Harvard St.
Whipple, Edwin Laurence, A. B. ( <i>Emory &amp; Henry Coll., Va.</i> ),	Montgomery, Ala.,	17 Dunster St.
Wildy, Samuel Houston,	Indianola, Texas,	30 Mt. Auburn St.
Willey, Walter Tolman,	Cambridge,	34 Holyoke St.
Yamada, Eneas,	Chikugo, Japan,	44 Mt. Auburn St.



## First Year's Students.

Addison, William, A. B. ( <i>Hobart Coll., Geneva, N. Y.</i> ),	<i>Pittsburg, Pa.,</i>	Boston.
Ballou, William Starr,	<i>Princeton, Ill.,</i>	25 Holyoke St.
Barker, Charles Simpson,	<i>Boston,</i>	W. 13.
Barnard, Charles Inman,	<i>Boston.</i>	Wadsworth House 13.
Bates, George Schuyler, A. B.,	<i>Brooklyn, N. Y.,</i>	C. 64.
Beaman, William Stacy, A. B.,	<i>Cambridge,</i>	C. 61.
Bonaparte, Charles Joseph, A. B.,	<i>Baltimore, Md.,</i>	17 Kirkland St.
Bonney, Benjamin West,	<i>New York, N. Y.,</i>	48 Brattle St.
Brannin, Horace Craig Grosvenor,		
A. B. ( <i>College of New Jersey</i> ),	<i>Louisville, Ky.,</i>	62 Trowbridge St.
Brown, John Freeman, A. B.,	<i>Cambridge,</i>	G. 27.
Buckingham, Frederick Samuel,	<i>Huntington, Conn.,</i>	102 Mt. Auburn St.
Burdett, Joseph Oliver, A. B. ( <i>Tufts Coll.</i> ),	<i>Wakefield,</i>	332 Broadway.
Burnes, Daniel Dee, A. B. ( <i>St. Louis Univ.</i> ),	<i>Weston, Mo.,</i>	2 Holmes Pl.
Chase, George Sidney,	<i>Topeka, Kansas,</i>	D. 20.
Clifford, Walter, A. B.,	<i>New Bedford,</i>	52 Brattle St.
Curtis, Albert Wakefield, A. B. ( <i>Yale Coll.</i> ),	<i>Worcester,</i>	2 Charles River St.
Dean, Walter Philip,	<i>Chicago, Ill.,</i>	D. 1.
Edgar, Francis Woolworth, B. A. ( <i>Lafayette Coll., Pa.</i> ),	<i>Easton, Pa.,</i>	60 Brattle St.
Enouy�, Yoshikatsu,	<i>Токеи, Japan,</i>	H'ke 10.
Field, Marcus Harvey, A. B. ( <i>Emory Coll., Ga.</i> ),	<i>Canton, Ga.,</i>	353 Harvard St.
Gammell, Robert Ives, A. B. ( <i>Brown Univ.</i> ),	<i>Providence, R. I.,</i>	5 Phillips Place.
Goddard, George Augustus, A. M.	<i>Boston,</i>	H'ke 40.
Grimk�, Archibald Henry, A. B. ( <i>Lincoln Univ., Oxford, Pa.</i> ),	<i>Charleston, S. C.,</i>	D. 38.
Hapgood, Jay Marshall,	<i>Peru, Vt.,</i>	Arlington St.
Hardie, Robert, A. B. ( <i>Victoria Univ., Canada</i> ),	<i>Vienna, Canada,</i>	878 Main St.
Harris, Darius Miller,	<i>Cambridge,</i>	45 Hastings St.
Heizer, Cyrus Whittlesey,	<i>Kossuth, Iowa,</i>	D. 20.
Henry, Hugh McDonald,	<i>Halifax, N. S.,</i>	39 Brattle St.
Hines, James Kollock, A. B. ( <i>Emory Coll., Ga.</i> ),	<i>Davisboro, Ga.,</i>	353 Harvard St.

Hitchcock, George, A. B. ( <i>Brown Univ.</i> ),	Providence, R. I.,	52 Brattle St.
Hunter, William, B. S. ( <i>Georgetown Coll., Ky.</i> ),	Belmont, Mo.,	22 Church St.
Huntington, Arthur Lord, A. B.,	Salem,	T. 7.
Hutchinson, Winfield Scott, A. M. ( <i>Bowd. Coll.</i> ),	Paris, Me.,	Boston.
James, John Herndon,	San Antonio, Texas,	D. 37.
Ledyard, Lewis Cass, A. B.,	Newport, R. I.,	Wadsworth House 7.
Lincoln, Albert Lamb, A. B.,	Brookline,	S. 21.
Lodge, Henry Cabot, A. B.,	Boston,	Boston.
Loring, William Caleb, A. B.,	Boston,	52 Brattle St.
Lowthorp, Francis Cowler,	Trenton, N. J.,	60 Brattle St.
McLarren, Irvine Greene, A. B. ( <i>Brown Univ.</i> ),	Eastport, Me.,	48 Holyoke St.
McNally, John James,	Charlestown,	S. 4.
Megata, Tanetaro,	Sidzuoka, Japan,	H'ke 10.
Milliken, Frank Albion,	New Bedford,	60 Brattle St.
Parker, Samuel Hale,	Boston,	C. 65.
Paxton, Thomas Rice, A. B. ( <i>Han-</i> <i>over Coll., Indiana</i> ),	Princeton, Ind.,	45 Mt. Auburn St.
Pease, Marshall Carleton,	Chicopee,	17 Dunster St.
Phelps, Charles Henry,	Oakland, Cal.,	12 Mt. Auburn St.
Pierce, Arthur Munroe,	Philadelphia, Pa.,	16 Oxford St.
Pullman, George Henry,	New York, N. Y.,	16 Oxford St.
Quigley, Richard Francis,	New Castle, N. B.,	28 Dunster St.
Riggins, James Richard,	Kansas City, Mo.,	12 Bow St.
Rogers, James Taylor,	Santa Rosa, Cal.,	890 Main St.
Scarritt, Edward Lucky,	Kansas City, Mo.,	12 Bow St.
Stone, Philip Sidney, A. B.,	Cambridge,	2 Phillips Place.
Sullivan, John Clyde,	Sidney, O.,	50 Mt. Auburn St.
Sullivan, Jeremiah Joseph, A. B.,	Watertown,	Watertown.
Swift, Henry Walton, A. B.,	New Bedford,	H'ke 42.
Temple, William,	Los Angeles, Cal.,	12 Mt. Auburn St.
Terrell, Edwin Holland, B. A. ( <i>Asbury Univ., Ind.</i> ),	Richmond, Ind.,	D. 18.
Thompson, Robert Means ( <i>U. S.</i> <i>Naval Academy</i> ),	Brooksville, Pa.,	2 Holmes Pl.
Troutt, James Morris, A. B.,	San Francisco, Cal.,	40 Winthrop Sq.
Tucker, William Lawrence, A. M.,	Newport, R. I.,	8 Holyoke St.
Tuttle, Jacob Farrand, A. M. ( <i>Wabash Coll., Ind.</i> ),	Morristown, N. J.,	56 Mt. Auburn St.

Wallach, Leopold,	New York, N. Y.,	102 Mt. Auburn St.
Whalen, John Henry,	San Francisco, Cal.,	62 Trowbridge St.
Wheeler, John Henry, A. B.,	Woburn,	C. 2.
White, Moses Perkins, A. B.,	Vershire, Vt.,	G. 5.
Wilson, Luther Campbell,	Lockport, N. Y.,	25 Holyoke St.
Wilson, Ramon Ernest,	Sacramento, Cal.,	40 Winthrop Sq.
Wolcott, Roger, A. B.,	Boston,	Boston.
Woods, John Carter Brown, A. B. (Brown Univ.),	Providence, R. I.,	5 Phillips Place.

### COURSE OF INSTRUCTION.

The design of this School is to afford such a training in the fundamental principles of English and American Law, as will constitute the best preparation for the practice of the profession in any place where that system of law prevails. With this view, the prescribed course of study, which is designed to occupy the student two full years, will comprise the following subjects :—

#### FIRST YEAR.

1. *Real Property* : . . . . . Prof. WASHBURN.
2. *Contracts* . . . . . Prof. LANGDELL.
3. *Torts* . . . . . Mr. GREEN.
4. *Criminal Law and Criminal Procedure* . . . . . Mr. GREEN.
5. *Civil Procedure at Common Law* . . . . . Prof. LANGDELL.

#### SECOND YEAR.

1. *Real Property* . . . . . Prof. WASHBURN.
2. *Civil Procedure at Common Law* . . . . . Prof. LANGDELL.
3. *Evidence* . . . . . Mr. GRAY.
4. *Jurisdiction and Procedure in Equity* . . . . . Mr. BRADLEY.

The entire course will be taught every year, so that students entering the School at the beginning of any year can begin the course and complete it in two years.

The methods of instruction will be by recitations ; by lectures and expositions ; by moot courts ; and by cases assigned to students for written opinions. Students will be required to prepare pleadings in equity, adapted to cases which will be given out for that purpose. Civil Procedure at Common Law will be taught by cases containing statements of facts, on each of which cases four counsel will be assigned, two on a side,

to plead to issue. The issue will then be argued before the professor and decided by him.

During the academic year 1872-3, instruction will be given in the following subjects in addition to those of the prescribed course :—

- |   |                 |
|---|-----------------|
| 1. <i>Constitutional Law</i> . . . . .  | Prof. WASHBURN. |
| 2. <i>Contracts and Sales of Personal Property</i> . . . . .  | Prof. LANGDELL. |
| 3. <i>Jurisdiction, Practice, and Peculiar Jurisprudence of<br/>the Courts of the United States</i> . . . . . | Mr. CURTIS.     |
| 4. <i>Marine Insurance</i> . . . . .  | Mr. BIGELOW.    |
| 5. <i>Wills and Administration</i> . . . . .  | Mr. THOMAS.     |
| 6. <i>Jurisprudence</i> . . . . .   | Mr. HOLMES.     |

### ADMISSION, EXAMINATIONS. AND DEGREES.

No examination, and no particular course of previous study, is required for admission, except in case of candidates for a degree who apply for admission to advanced standing ; but the student, if not a graduate of a college, must be at least nineteen years of age, and produce testimonials of good moral character. He must also give a bond in the sum of two hundred dollars, signed by two bondsmen, one of whom must be a citizen of Massachusetts, for the payment of dues to the University ; or, instead of filing a bond, he may pay his tuition-fee for the year in advance, and deposit fifty dollars with the Steward, to be retained until the end of the academic year, and then to be accounted for.

Students who are not candidates for a degree may enter the School at any stage of their professional studies, and at any time in the year, and may avail themselves of the advantages of the School in whatever manner and to whatever extent they see fit.

The degree of Bachelor of Laws will be conferred upon students who, having been in the School during the whole course of two years, shall have passed satisfactory examinations at the end of each year in the prescribed studies of that year ; and also upon those who, having been admitted one year in advance, shall have been in the School one year and have passed a satisfactory examination in the prescribed studies of the second year at the end of the year. At the end of the present academic year, the examination in Civil Procedure for first year's students will be upon Stephen on Pleading ; for second year's students, upon Stephen on Pleading, and also upon the following special subjects, viz., — Costs, Motions and Rules (including Summonses and Orders). The examination in the latter subjects will not be upon any particular text-books, but Chitty's Archbold's Practice, 12th Ed. (Vol. I. Pt. 1, Ch. 23, Vol. II. Pt. 6) will serve to indicate its scope.

Admission to advanced standing will be allowed only upon an examination, which will be held at the beginning of the academic year, and will require of the candidates a thorough knowledge of the following books:—

Washburn on Real Property ( Book I., Chapters 1 to 5 inclusive, and Chapters 10 to 16 inclusive; Book II., Chapter 2, §§ 2 to 5 inclusive; Book III., Chapters 4 and 5); Langdell's Select Cases on Contracts, Vol. I.; Addison on Torts, abridged; Blackstone's Commentaries, Book IV.; Stephen on Pleading, including Chapter 1.

The examination for admission to advanced standing for the year 1873-74 will be held at Dane Hall on Thursday and Friday September 25, 26, beginning at 9 A. M. on Thursday. No applicant will be examined at any other time.

### FEEES AND EXPENSES.

The fee for the first year that a student is a member of the School is one hundred and fifty dollars; for the second year, one hundred dollars; and for any subsequent year, fifty dollars. For a half, or any less fraction of a year, half of a year's fee is charged; for more than half a year, the fee for the whole year is charged.

There are no extra charges in the school.

The other expenses of a student for an academic year may be estimated as follows:—

Rent and care of furnished room	from \$75.00 to \$150.00
Board for thirty-eight weeks	“ 190.00 “ 304.00
Fuel and Lights	“ 20.00 “ 25.00
Text-Books	“ 20.00 “ 25.00
	<hr/>
	\$305.00 “ \$504.00

Many students in the University board in clubs at a less cost than is given in the above estimate; others board themselves still more cheaply. Students who are willing to go a mile from the Law School can also get cheaper rooms.

### LIBRARY.

The Law Library is one of the most extensive in the country; and among libraries belonging to law schools it has no rival. In the departments of Civil and Foreign Law it is believed to stand at the head of all libraries in this country. Within the last two years it has received very extensive and important additions, nearly ten thousand dollars having

been expended in the purchase of books and in binding since September 1, 1870.

The Library is open day and evening for the use of students during the entire academic year.

### SCHOLARSHIPS.

Four Bussey Scholarships and four University Scholarships, of the annual value of one hundred dollars each, have been established in the Law School. They are assigned at the beginning of each academic year to meritorious students standing in need of such assistance, who have been in the School the whole of the preceding year and propose to remain in it the whole of the ensuing year. The award is made by the Corporation on recommendation of the Faculty. One third of the annual value of the Scholarships is paid at the time of the award, and the remaining two thirds on the first of April following. Applications for these Scholarships must be addressed in writing to the Dean before the first of June.

# LAWRENCE SCIENTIFIC SCHOOL.

## FACULTY.

CHARLES W. ELIOT, LL.D., *President.*  
 HENRY L. EUSTIS, A. M., *Dean, and Professor of Engineering.*  
 LOUIS AGASSIZ, LL.D., *Professor of Zoology and Geology.*  
 • BENJAMIN PEIRCE, LL.D., *Professor of Mathematics.*  
 ASA GRAY, LL.D., *Professor of Natural History.*  
 WOLCOTT GIBBS, M. D., *Professor of Physics.*  
 JOSEPH WINLOCK, A. M., *Professor of Astronomy.*  
 JOSIAH P. COOKE, A. M., *Professor of Chemistry.*  
 JAMES M. PEIRCE, A. M., *Professor of Mathematics.*  
 ——— ———, *Professor of Topographical Engineering.*  
 WILLIAM H. PETTEE, A. M., *Assistant Professor of Mining.*  
 NATHANIEL S. SHALER, S. B., *Professor of Palæontology.*  
 JOHN TROWBRIDGE, S. B., *Assistant Professor of Physics.*  
 GEORGE L. GOODALE, A. M., *Instructor in Botany.*  
 CHARLES L. JACKSON, A. M., *Assistant Professor of Chemistry.*  
 JOSIAH C. BARTLETT, A. M., *Instructor in Mathematics.*

PIERRE JULIEN BORIS, *Instructor in French.*  
 GEORGE T. DIPPOLD, *Instructor in German.*  
 CHARLES HERBERT MOORE, *Instructor in Drawing.*

## STUDENTS.

NAME.	RESIDENCE.	ROOM.
Barstow, Charles Dean,	Taunton,	19 Baldwin St.
Burnett, Marshall Turner,	Hyde Park,	19 Baldwin St.
Cloud, John Wills, Jr.,	Woodbury, N. J.,	26 Brattle St.
Damon, Edward Orne,	Northampton,	H'ke, 26.
Davis, Bancroft Chandler,	Watertown,	H'ke, 38.
Dean, Francis Winthrop,	Taunton,	19 Baldwin St.
Delano, Warren, Jr.,	Newburgh, N. Y.,	4 Garden St.
Denton, Huntington,	Newburgh, N. Y.,	127 Mt. Auburn St.
Dewhurst, Wm. Whitwell,	Exeter, N. H.,	C. 18.
Eustis, Wm. Ellery Channing, A. B.,	Milton,	H'ke, 45.

Huckins, Irving,	Cambridge,	38 Concord Av.
Ingersoll, Ernest,	Monroe, Mich.,	R. D. 11.
James, Montgomery,	Cambridge,	94 Brattle St.
Garman, Samuel Walton,	Chicago, Ill.,	18 Oxford St.
Kettell, Charles Willard, A. B.,	Charlestown,	Charlestown.
Lee, Richard Henry, S. B.,	Pottsville, Pa.,	G. 1.
Litchfield, John Fred. Bates,	Southbridge,	342 Broadway.
Low, Chauncey Edward,	Brooklyn, N. Y.,	2 Garden St.
McKenzie, Alexander,	Stamford, Conn.,	16 Little's Block.
Murphy, Simon Jones, Jr.,	Detroit, Mich.,	14 Appian Way.
Perkins, Charles Edward,	Cambridge,	34 Hancock St.
Perkins, Seth,	Boston,	6 Charles River St.
Platts, Almon Alonzo,	Rindge, N. H.,	20 Mason St.
Reggio, André Carney,	Boston,	7 Little's Block.
Scott, William Dodge,	Brooklyn, N. Y.,	
Sharpless, Isaac,	West Chester, Pa.,	52 Brattle St.
Smith, Willie French,	Somerville,	Somerville.
Snow, Eugene Josiah,	Chicago, Ill.,	T. 16.
Steele, John Hall,	Pottstown, Pa.,	10 Appian Way.
Tebbetts, George Edward,	Swampscott,	Swampscott.
Thayer, Edward Davis, Jr.,	Worcester,	T. 16.
Walters, Henry, A. M.		8 Berkeley St.
(Georgetown),	Baltimore, Md.,	134 Mt. Auburn St.
White, Edwin Markland,	Charlestown,	Charlestown.
White, John Fleming, B. S.		
(Waynesburg),	Cameron, W. Va.,	56 Mt. Auburn St.
Whitney, Calvin Eastman,	Petaluma, Cal.,	1 Revere Pl.
Wiley, Harvey Washington, A. M.		
(Hanover), M.D., (Ind. Med. Coll.),	Indianapolis, Ind.,	10 Church St.
Yznaga, Antonio Modesto,	Cuba, W. I.,	29 Dunster St.

This School has been thoroughly reorganized, and now offers very systematic and complete courses of study in all departments of science. These courses have been arranged as follows: First, the courses designed to meet the needs of the graduates of High Schools and Academies who desire a practical education in Civil and Topographical Engineering, in Mining Engineering, in Chemistry, in Natural History, or in Mathematics, Physics, and Astronomy. College graduates should be able to enter these courses one or two years in advance. Secondly, the teachers' courses, intended especially for those who have been or who are preparing to be teachers, and designed to qualify such persons in the modern methods of teaching science by observation and experiment.



Thirdly, the higher instruction in science designed for candidates for the degree of Doctor of Philosophy, or Doctor of Science, and other advanced students.

## COURSES PREPARATORY TO THE DEGREES OF CIVIL ENGINEER AND BACHELOR OF SCIENCE.

### ENGINEERING.

1. A four years' course of study in CIVIL AND TOPOGRAPHICAL ENGINEERING, as follows: *First Year*—Spherical Trigonometry; Analytical Geometry; Descriptive Geometry; Chemistry; Surveying and Plotting; Road-making; Free-hand and Water-color Drawing; French. *Second Year*—Differential and Integral Calculus; Mechanics; Physics; Physical Geography; Elementary Geology; Mineralogy, including the use of the Blow-pipe and Crystallography; Mechanical Drawing; French; German. *Third Year*—Applied Mechanics; Practical Astronomy and Geodesy; Hypsometry; Topographical Surveying and Drawing; Geology; Photography; German. *Fourth Year*—Building materials and their applications in railroads, canals, bridges, etc.; Applications of Descriptive Geometry to masonry and stone-cutting; Hydraulics; Heat and its applications; Discussions of existing structures and working out of projects.

Students who complete this course and pass the required examination receive the degree of Civil Engineer, and are prepared to enter on the practice of their profession. Those preparing to become mining engineers substitute for the studies of the fourth year the special mining course stated below (p. 110).

### CHEMISTRY.

2. A three years' course in PRACTICAL AND THEORETICAL CHEMISTRY, as follows: *First Year*—Chemical Manipulation; Descriptive Chemistry; Qualitative Analysis; Free-hand and Water-color Drawing; Physics; Elementary Geology; French. *Second Year*—Descriptive Chemistry (continued); Quantitative Analysis; Experimental Physics; Mineralogy, including the use of the Blow-pipe and Crystallography; German. *Third Year*—Organic Chemistry; Preparation of Chemical Products; Chemical Physics (including Determination of Specific Gravity of Vapors and Gas Analysis); Metallurgy; Assaying; Photography; German.

This course is intended for students preparing to become practical chemists or teachers of the science, and the course may be varied to meet special wants.

Students completing the course and passing the required examinations receive the degree of Bachelor of Science.

#### NATURAL HISTORY.

3. A three years' course in NATURAL HISTORY, as follows : *First Year* — Chemical Manipulations ; Descriptive Chemistry ; Qualitative Analysis ; Elements of Physical Geography, Meteorology, and Structural Geology ; Microscopy ; Botany ; French ; Free-hand and Water-color Drawing. *Second Year* — Experimental Physics ; Mineralogy, with use of the Blow-pipe ; Botany ; Comparative Anatomy (vertebrates) ; Zoölogy ; Physiology ; German ; Drawing. *Third Year* — Zoölogy ; Botany ; Palæontology ; Geology ; German.

Students who complete this course and pass the required examinations receive the degree of Bachelor of Science.

#### MATHEMATICS, PHYSICS, AND ASTRONOMY.

4. A three years' course in MATHEMATICS, PHYSICS, and ASTRONOMY, as follows : *First Year* — Spherical Trigonometry ; Analytic Geometry ; Elements of the Differential and Integral Calculus ; Practical Applications of Trigonometry ; Practical Astronomy and Geodesy ; Physical Geography ; French. *Second Year* — Differential and Integral Calculus, second course ; Mechanics ; Theory of Equations ; Interpolation, Method of Least Squares, and Practical Computation ; Heat, with its Applications ; Experimental Physics ; German. *Third Year* — German ; the other studies elective, and such that a student may pursue a special course in either Physics, Astronomy, or Pure Mathematics.

Students who complete this course and pass the required examinations receive the degree of Bachelor of Science.

#### THE TEACHERS' COURSES.

1. A one year's course of study in the elements of NATURAL HISTORY, CHEMISTRY, AND PHYSICS, as follows : Physical Geography, Meteorology, and Structural Geology ; General Chemistry and Qualitative Analysis ; Mineralogy ; Physics ; Botany ; Zoölogy.

This course is flexible and comprehensive ; the instruction is mainly given in the laboratories and museums of the University, and it is of the most practical character, every student being taught to make experiments and study specimens himself.

Botanical instruction will be given at the new botanical laboratory. Dissecting microscopes are provided for students, and the garden and greenhouses afford ample material for the practical study of the science.

All work is under the direct supervision of Professor Gray and his assistant.

Similar facilities are afforded for the study of Zoölogy at the laboratories of the Museum of Comparative Zoölogy, and of Mineralogy at the Mineral Cabinet. The instruction in Experimental Chemistry and Physics is given in the new laboratories which have been provided for these departments by the College, and the students are shown the best methods of illustrating experimentally the principles of these sciences. Students in this course can accompany Professor Shaler in his geological excursions, and will have ample opportunities for other field instruction.

2. Special instruction in Botany will be given during the vacation to teachers who are unable to attend during term time, and students who desire practice in the field can accompany Professor Gray and Mr. Goodale in their excursions.

Certificates of attendance upon this course will be given by the University, upon examination.

#### INSTRUCTION FOR CANDIDATES FOR THE DOCTORS' DEGREE, AND OTHER ADVANCED STUDENTS.

Thorough instruction for *advanced* students can be obtained in any of the following subjects: PHYSICS; CHEMISTRY; ZOÖLOGY; GEOLOGY; BOTANY; and MATHEMATICS.

Professor Gibbs will receive special students in Heat and Light at the Rumford Laboratory; Assistant Professor Trowbridge will receive special students in Physics at the Laboratory in Harvard Hall; Professor Cooke will receive special students in Chemistry at the laboratories in Boylston Hall. Professors Agassiz, Hagen, and Shaler will receive special students in Zoölogy and Geology at the Museum of Comparative Zoölogy. Professor Gray and Mr. Goodale will receive special students in Botany at the Botanic Garden and Herbarium. Professors Benjamin Peirce and James M. Peirce will receive special students in Mathematics.

The opportunities for advanced students in all branches of Natural History and in Physics, Chemistry, Astronomy, and Mathematics, are much greater than heretofore. The Museum of Comparative Zoölogy was more than doubled in size during the year 1871; a laboratory, lecture-room, and greenhouse, were added to the equipment of the botanical department, and the library and herbarium of the department are the largest in America. A laboratory of Physics was created in Harvard Hall; the chemical laboratories in Boylston Hall were greatly enlarged and improved; the interior of the Scientific School Building was completely reconstructed, and a distinct physical laboratory and cabinet were

assigned to the Rumford Professor (Dr. Gibbs). The laboratory of Physics in Harvard Hall is provided with the most recent apparatus for electrical measurements and other instruments of precision, which afford ample means of teaching the methods of investigating physical phenomena. The new chemical laboratory with one hundred desks is devoted to experimental chemistry and qualitative analysis, while the old laboratory will be expressly fitted up for quantitative analysis, and reserved for advanced students. Field instruction is given both in term time and vacation in Geology, Zoölogy, and Botany.

### ADMISSION.

Graduates of Classical Schools who are fitted for College, and also graduates of High Schools and Academies in the English department, should be prepared for the systematic courses above mentioned; these courses are especially designed for students of this grade. Candidates for admission to the Engineering Course will be examined in Arithmetic, Algebra, Geometry, and in Plane and Analytical Trigonometry. Candidates for admission to the course in Mathematics, Physics, and Astronomy will be examined in the subjects required for admission to the course in Engineering, and also in the elements of Analytic Geometry and Physics. Every candidate for admission to advanced standing will be further examined in all the studies already pursued by the class for which he offers himself. *Examination for admission will be held on Thursday, June 26, and Thursday, September 25, 1873, at Lawrence Hall, Cambridge, beginning at 9 A. M.* Students offering themselves at the first examination, and finding themselves deficient in a portion of the mathematics, can get systematic instruction on these subjects at Cambridge during the long summer vacation. There is no examination for admission to the other courses or departments of the Lawrence Scientific School.

### DEGREES.

The Degree of *Civil Engineer* will be conferred upon students who have completed the course of study in civil and topographical engineering, and sustained the necessary examinations.

The Degree of *Bachelor of Science* may be conferred upon any student who, having attended the School for at least one year, and completed the prescribed course of studies in one or more departments, shall have passed a satisfactory public examination. The department or departments in which the student has been examined, and his grade of merit, will be

specified in the Diploma. The three grades of the Degree are *cum laude*, *magna cum laude*, *summa cum laude*.

The Degree of *Doctor of Science* may be conferred upon any Bachelor of Science in accordance with the regulations stated on page 140.

### SCHOLARSHIPS.

Four University Scholarships, of the annual value of one hundred and fifty dollars each, have been established in the Scientific School. They are assigned at the beginning of each academic year to meritorious students standing in need of such assistance, who have been in the School the whole of the preceding year, and propose to remain in it the whole of the ensuing year. The award is made by the Corporation on recommendation of the Faculty. One third of the annual value of the Scholarships is paid at the time of the award, and the remaining two thirds on the first of April following. Applications for these Scholarships must be addressed in writing to the Dean by the first of June.

### FEEES AND EXPENSES.

The tuition-fee for the academic year, in any of the above departments or courses, is one hundred and fifty dollars; for half or any smaller fraction of a year seventy-five dollars; for any fraction of a year greater than one half, the fee of the whole year is charged.

The tuition-fees for candidates for the degree of Doctor of Philosophy or Doctor of Science are stated on page 142.

The other expenses of a student for an academic year may be estimated as follows:—

Room . . . . .	from \$ 30 to \$100
Board for thirty-eight weeks . . . . .	“ 152 “ 304
Books . . . . .	“ 20 “ 25
Fuel and lights . . . . .	“ 15 “ 35
Washing . . . . .	“ 19 “ 38
	<hr/>
	\$ 236 “ \$ 502

Students in the Scientific and Mining Schools may obtain rooms in the College Buildings by applying to E. W. Hooper, Steward, either by mail or in person.

Students in Chemistry are supplied with all needed apparatus, but are required to restore it in as good condition as when received. They are charged for all damage or breakage, and also from ten to thirty dollars per annum for chemicals and use of apparatus.

Students in Engineering will provide their drawing materials.

The Gymnasium is open to all members of the University. The fee for attendance and instruction is *four dollars* a year.

All students admitted to the Lawrence Scientific School, or the Mining School, must furnish satisfactory evidence of good moral character, give bonds in the sum of two hundred dollars, signed by two bondsmen, one of whom must be a citizen of Massachusetts, for the payment of all dues to the University, and register their names with the Dean of the Faculty of the School to which they are admitted. Instead of filing a bond, a student may deposit with the College Steward such a sum of money as may be deemed sufficient to secure payment of all dues to the University.

# SCHOOL OF MINING AND PRACTICAL GEOLOGY.

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## FACULTY.

CHARLES W. ELIOT, LL. D., *President.*  
JOSIAH D. WHITNEY, LL. D., *Dean, and Professor of Geology.*  
ASA GRAY, LL. D., *Professor of Natural History.*  
HENRY L. EUSTIS, A. M., *Professor of Engineering.*  
WOLCOTT GIBBS, M. D., *Professor of Physics.*  
JOSEPH WINLOCK, A. M., *Professor of Astronomy.*  
JOSIAH P. COOKE, A. M., *Professor of Chemistry.*  
———, *Professor of Topographical Engineering.*  
RAPHAEL PUMPELLEY, *Professor of Mining.*  
WILLIAM H. PETTEE, A. M., *Assistant Professor of Mining.*  
NATHANIEL S. SHALER, S. B., *Professor of Palaeontology.*

## STUDENTS.

NAME.	RESIDENCE.	ROOM.
Ladd, Story Butler,	Cambridge,	2 Frost St.
Pitman, Stephen Minot, PH. B. ( <i>Tufts Coll.</i> ),	Somerville,	Somerville.
Szemelényi, Ernest,	Baltimore, Md.,	M. 35.

This School has for its object the instruction of students in Practical Geology, the Art of Mining, and kindred branches. The full course occupies four years, and on those who pass through it and sustain the necessary examinations, the degree of *Mining Engineer* will be conferred.

## COURSE OF STUDY.

The full course, prescribed for candidates for the degree of Mining Engineer, occupies four years, the first three of which are identical, as regards the subjects of instruction and the order thereof, with the first three years of the Engineering Course in the Lawrence Scientific School. The subjects of instruction during the fourth year of the course are as follows : Economical Geology and the Phenomena of Veins ; Mining Machinery and the Exploitation of Mines ; General and Practical Metallurgy ; As-

saying; Working up, Plotting, and Writing out notes of summer excursions.

From time to time opportunities will be offered to the students, by excursions with the Professors, of becoming practically acquainted with astronomical and geodetic work, as also with the method of making geological surveys, and with mining and metallurgical operations.

### ADMISSION.

The terms of admission on examination are the same as those of the Engineering Course in the Lawrence Scientific School.

Graduates of Colleges will be admitted without previous examination, and those who have taken the mathematical and scientific studies of the elective courses in Harvard College, or their equivalents in other institutions, should be able to enter at the commencement of the Second Year.

Persons properly qualified, and able to pass the necessary examination, will be admitted to any part of the course, at the beginning of any half-year, but not later than the beginning of the second half of the Third Year.

Any person, however, who is not desirous of being considered as a candidate for a degree, may attend any special branch taught in the School or any course of lectures, at his own pleasure, on paying such proportion of the fees for instruction as may be fixed by the Professor to whose department he desires to be attached.

### FEES AND EXPENSES.

See under Lawrence Scientific School.



# ASTRONOMICAL OBSERVATORY.

## FACULTY.

CHARLES W. ELIOT, LL. D., *President.*

JOSEPH WINLOCK, A. M., *Director of the Observatory.*

## ASSISTANTS.

ARTHUR SEARLE, A. M.

WILLIAM A. ROGERS, A. M.

CHARLES S. PEIRCE, S. B.

## OBJECTS AND COURSE OF INSTRUCTION.

The objects of the Observatory are to furnish accurate and systematic observations of the heavenly bodies for the advancement of Astronomical Science, to co-operate in Geodetical and Nautical Surveys, to contribute to the improvement of Tables useful in Navigation, and, in general, to promote the progress of knowledge in Astronomy and the kindred sciences. To aid in effecting these objects, provision is made for publishing the Observations and the Director's Reports, and for increasing the Library.

*Practical Astronomy and the Use of Astronomical Instruments* will be taught by the Director of the Observatory, and by his Assistants.

### *Text-Books and Works for Reference and Reading.*

Herschel's Outlines of Astronomy.	servationum Erroribus Minimis
Loomis's Practical Astronomy.	Obnoxiae.
Bowditch's Practical Navigator.	Liagre's Calcul des Probabilités, et
Methods of Computing the Orbit of	Théorie des Erreurs.
a Comet or Planet. (Appendix	Chauvenet's Manual of Spherical
to Vol. III. of Bowditch's Trans-	and Practical Astronomy.
lation of Mécanique Céleste.)	Airy's Theory of Errors of Observa-
Brünnow's Spherical Astronomy.	tions.
Grant's History of Physical Astron-	Olbers's Methode die Bahn eines
omy.	Cometen zu berechnen. Edited
Gauss's Theoria Motus Corporum	by Encke.
Cœlestium.	Watson's Theoretical Astronomy.
Gauss's Theoria Combinationis Ob-	Roscoe's Spectrum Analysis.

The fees for instruction may be agreed upon with the Instructor.

# MEDICAL SCHOOL.

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BOSTON.

## NINETIETH ANNUAL ANNOUNCEMENT. (1872-73.)

THE plan of Study in this School was radically changed in 1871, to take effect from September 28th of that year. Instruction is now given by lectures, recitations, clinical teaching, and practical exercises uniformly distributed throughout the academic year. This year begins on the Thursday following the last Wednesday in September, and ends on the last Wednesday in June; it is divided into two equal terms, with a recess of one week between them. There is also a recess of one week at Christmas. Either of these two terms is more than equivalent to the former "Winter Session," as regards the amount and character of the instruction.

The course of instruction has been greatly enlarged, so as to extend over three years, and has been so arranged as to carry the student progressively and systematically from one subject to another in a just and natural order.

In the subjects of anatomy, histology, chemistry, and pathological anatomy, laboratory work is substituted for, or added to, the usual didactic lectures, and laboratory work is as much required of every student as attendance at lectures and recitations.

Instead of the customary hasty oral examination for the degree of Doctor of Medicine, held at the end of the three years' period of study, a series of examinations on all the main subjects of medical instruction has been distributed for regular students through the whole three years; but they may be passed by other students either all at once at the end of their course, or, successively, at several times. Every candidate for the degree must hereafter pass a satisfactory examination in every one of the principal departments of medical instruction at some time during his period of study. The Faculty are convinced that this requisition will present no serious obstacle whatever to those who do not neglect their opportunities.

## FACULTY.

- CHARLES W. ELIOT, LL.D., *President.*  
 CALVIN ELLIS, M. D., *Jackson Professor of Clinical Medicine, Dean.*  
 JOHN B. S. JACKSON, M. D., *Shattuck Professor of Morbid Anatomy, and Curator of the Anatomical Museum.*  
 OLIVER W. HOLMES, M. D., *Parkman Professor of Anatomy.*  
 GEORGE C. SHATTUCK, M. D., *Hersey Professor of the Theory and Practice of Physic.*  
 HENRY J. BIGELOW, M. D., *Professor of Surgery.*  
 GEORGE DERBY, M. D., *Professor of Hygiene.*  
 JOHN E. TYLER, M. D., *Professor of Mental Diseases.*  
 CHARLES E. BUCKINGHAM, M. D., *Professor of Obstetrics and Medical Jurisprudence.*  
 FRANCIS MINOT, M. D., *Assistant Professor of the Theory and Practice of Medicine, and Clinical Lecturer on the Diseases of Women and Children.*  
 JOHN P. REYNOLDS, M. D., *Instructor in Obstetrics.*  
 HENRY W. WILLIAMS, M. D., *Professor of Ophthalmology.*  
 JOHN N. BORLAND, M. D., *Instructor in Clinical Medicine.*  
 DAVID W. CHEEVER, M. D., *Adjunct Professor of Clinical Surgery.*  
 JAMES C. WHITE, M. D., *Professor of Dermatology.*  
 ROBERT T. EDES, M. D., *Assistant Professor of Materia Medica.*  
 HENRY P. BOWDITCH, M. D., *Assistant Professor of Physiology.*  
 CHARLES BURNHAM PORTER, M. D., *Demonstrator of Anatomy.*  
 FREDERICK I. KNIGHT, M. D., *Instructor in Percussion, Auscultation, and Laryngoscopy.*  
 JOHN C. WARREN, M. D., *Instructor in Surgery.*  
 REGINALD H. FITZ, M. D., *Instructor in Pathological Anatomy.*  
 EDWARD S. WOOD, M. D., *Assistant Professor of Chemistry.*

## OTHER INSTRUCTORS.

- HENRY KEMBLE OLIVER, M. D., *Lecturer on Laryngoscopy.*  
 CLARENCE JOHN BLAKE, M. D., *Lecturer on Otology.*  
 JOHN ORNE GREEN, M. D., *Lecturer on Otology.*  
 FRANCIS BOOTT GREENOUGH, M. D., *Lecturer on Syphilis.*  
 JAMES J. PUTNAM, M. D., *Lecturer on Application of Electricity in Nervous Diseases.*  
 HENRY HARRIS AUBREY BEACH, M. D., *Assistant Demonstrator of Anatomy.*

STUDENTS.

Doctors of Medicine.

NAME.	RESIDENCE.
Bishop, Pharnel Euclid, M. D.,	<i>Pawtucket, R. I.</i>
Bridgman, Marcus Fayette, M. D.,	
Carbee, Samuel Powers, M. D.,	<i>Haverhill, N. H.</i>
Carleton, Charles Monro, M. D.,	<i>Norwich, Conn.</i>
Evans, Earl, M. D.,	<i>Winchester, N. H.</i>
Hilz, Charles William, M. D.,	<i>Chester, N. S.</i>
Nichols, Charles Byron, M. D.,	<i>Dartmouth, N. H.</i>
Smith, Arthur Newell, M. D.,	<i>Baring, Maine.</i>

Third Year's Students.

Bacon, Joshua Edgar,	<i>Waukesha, Wis.</i>
Barss, James Richmond,	<i>Bermuda, W. I.</i>
Buckingham, Edward Marshall,	<i>Boston.</i>
Bush, John Foster,	<i>Boston.</i>
Clapp, Levi Wheaton, A. B. ( <i>Brown Univ., R. I.</i> ),	<i>Pawtucket, R. I.</i>
Foster, Arthur Louis, A. B. ( <i>Williams Coll.</i> ),	<i>Boston.</i>
Henchey, John Henry,	<i>Quebec, C. E.</i>
Howard, William Wells,	<i>Waltham.</i>
Loring, Francis Boott,	<i>Boston.</i>
McSwain, Angus,	<i>Prince Edward Island.</i>
Mann, Samuel Hill,	<i>Providence, R. I.</i>
Moore, Edward Jesse,	<i>Lowell.</i>
Porter, George Whipple, A. B. ( <i>Brown Univ., R. I.</i> ),	<i>Lincoln, R. I.</i>
Rotch, Thomas Morgan, A. B.,	<i>Cambridge.</i>
Spear, Edmund Doe, Jr.,	<i>Boston.</i>
Stedman, Henry Rust,	<i>Boston.</i>
Warren, Herbert,	<i>Leicester.</i>

Second Year's Students.

Abbott, Fletcher Morton,	<i>Boston.</i>
Appleton, William, Jr.,	<i>Boston.</i>
Bigelow, William Sturgis, A. B.,	<i>Boston.</i>
Burchmore, John Henry,	<i>Charlestown.</i>
Booth, Edward Chauncey, A. B.,	<i>Somerville.</i>
Bradford, Henry Withington,	<i>Randolph.</i>
Bryant, Lewis Lincoln,	<i>Cambridge.</i>
Bulfinch, George Greenleaf,	<i>Boston.</i>

Clark, Jonas, Jr.,	<i>Waltham.</i>
Daniels, Edwin Alfred,	<i>Auburndale.</i>
Davenport, Frank Henry, A. B. ( <i>Williams Coll.</i> ),	<i>Boston.</i>
Dunbar, Eugene Fillmore,	<i>Boston.</i>
Dunn, William Aloysius,	<i>Boston.</i>
Ela, Walter, A. B.,	<i>Cambridge.</i>
Fleming, James Aloysius,	<i>Boston.</i>
Garland, George Minott, A. B.,	<i>Lawrence.</i>
Gerry, Edwin Peabody, A. M. ( <i>Dart. Coll., N. H.</i> ),	<i>E. Somerville.</i>
Hills, William Barker, A. B.,	<i>Plaistow, N. H.</i>
Howe, Samuel, A. B.,	<i>Cambridge.</i>
Hutchinson, Alexander Rankin,	<i>Miramichi, N. B.</i>
Lawrence, Alexander Bloomfield,	<i>St. John, N. B.</i>
Lewis, Bennett Sperry,	<i>Bridgeport, Ct.</i>
Loring, Robert Pearmain,	<i>Brookline.</i>
Lovering, Phillips Adams, A. B.,	<i>Somerville.</i>
Mosely, William Edward,	<i>Medford.</i>
Stedman, George, A. B.,	<i>Boston.</i>
Thomas, Flavel Shurtleff,	<i>Hanson.</i>
Wheeler, Morris Plumer,	<i>Boston.</i>
White, Cornelius Edwin,	<i>Taunton.</i>
Whitney, William Fiske, A. B.,	<i>Boston.</i>
Wilder, Frank Blaisdell, A. B. ( <i>Williams Coll.</i> ),	<i>Boston.</i>
Williams, Charles Herbert, A. B.,	<i>Boston.</i>

#### First Year's Students.

Batchelder, George Henry Clement,	<i>Newburyport.</i>
Bell, Read Letts, A. B. ( <i>Denison Univ., Ohio</i> ),	<i>Granville, Ohio.</i>
Bickford, George Coburn,	<i>Charlestown.</i>
Bowen, Seranus,	<i>Boston.</i>
Buxton, Gonzalo Edward,	<i>Worcester.</i>
Cabot, Arthur Tracy, A. B.,	<i>Boston.</i>
Clark, Charles Edward, A. B. ( <i>Bowdoin Coll., Me.</i> ),	<i>Portland, Me.</i>
Connolly, John James,	<i>Boston.</i>
Cutter, Charles Kimball, A. B. ( <i>Tufts Coll.</i> ),	<i>East Somerville.</i>
Emery, Isaiah Stetson,	<i>Bangor, Me.</i>
Gay, Almon Debois,	<i>Belmont.</i>
Gorman, Benedict Fenwick,	<i>Providence, R. I.</i>
Gunter, Adolphus Birum,	<i>Frederickton, N. B.</i>
Hicks, Herbert Dexter,	<i>Arlington.</i>
Hunking, Charles Dustin, A. B.,	<i>Haverhill.</i>

Hunt, Frank Whittemore,  
 Jackson, William Leavit,  
 Kennealy, John Henry,  
 La Fortune, Joseph, A. B. (*Joliette Coll.*),  
 Larimer, Flavius Melancthon,  
 Masforroll, Manuel, A. B. (*Santiago de Cuba*),  
 McCormick, Cornelius Joseph,  
 McClean, George Chesley,  
 Montague, George Prescott, A. B.,  
 Moore, Frederick Fisk,  
 Morong, Arthur Bennet, A. B. (*Amherst Coll.*),  
 O'Connell, John David,  
 Perkins, Thomas Lyman,  
 Place, Charles Ashton,  
 Putney, George Ellis,  
 Rand, Alfred, A. B.,  
 Reardon, Jeremiah John,  
 Robinson, Samuel Quincy, B. S. (*Dart. Coll.*),  
 Spalding, George A., A. B. (*Yale Coll.*),  
 Smith, George Edward,  
 Swan, Justin Morrill,  
 Sweetser, Arthur Frank,  
 Teele, Jonathan Merle, A. B. (*Tufts Coll.*),  
 Tilden, George Horton, A. B.,  
 Webber, Frank Orlando,  
 White, Andrew Smart,  
 Winn, William Adams, A. B.,  
 Yerxa, Alfred Alonzo,  
 Young, Parker Ambrose,

*Nashua, N. H.*  
*Boston.*  
*Boston.*  
*Joliette, C. E.*  
*Le Claire, Iowa.*  
*Santiago, Cuba.*  
*Milford.*  
*Springfield.*  
*Chelsea.*  
*Cambridge.*  
*Boston.*  
*East Lexington.*  
*Salem.*  
*East Walpole.*  
*Boston.*  
*Charlestown.*  
*Boston.*  
*Boston.*  
*Greenup, Ky.*  
*Zanesville, O.*  
*West Bridgewater.*  
*Greenwood.*  
*Somerville.*  
*Boston.*  
*Cambridge.*  
*Boston.*  
*Arlington.*  
*Frederickton, N. B.*  
*Boston.*

#### Unclassified.

Brown, Henry Wheeler,  
 Brown, Simon Van Buren,  
 Bryant, William Nelson,  
 Burnett, L. W.,  
 Byers, John Andrew, A. B. (*Univ. of N. B.*),  
 Caldwell, George Peters,  
 Cannon, David Howland,  
 Carolin, Wm. Terence,  
 Cliff, Leander Albert, A. B. (*Univ. of N. B.*),  
 Coker, John Henry,  
 Coburn, George Albert, A. M. (*Amherst Coll.*),

*Croydon, N. H.*  
*Allston.*  
*Middlesex, Vt.*  
*St John, N. B.*  
*St. John, N. B.*  
*Muttapoisett.*  
*Lowell.*  
*Frederickton, N. B.*  
*Denton, Md.*  
*Cambridge.*

Colburn, Charles Henry,	<i>Boston.</i>
Cole, Martin, Jr.,	<i>Montague, N. J.</i>
Crosby, William Sage, A. B.,	<i>Boston.</i>
Cross, Benjamin Putnam, A. B. ( <i>Union Coll.</i> ),	<i>Newton Centre.</i>
Cunningham, Thomas Edward,	<i>Charlottetown, P. E. I.</i>
Currie, John Zebulon, A. B. ( <i>Univ. of N. B.</i> ),	<i>Frederickton, N. B.</i>
Dale, William Henry,	<i>Boston.</i>
Deinstadt, William McKay,	<i>Shelburne, N. S.</i>
Des Brisay, Th. De La Cour,	<i>Bridgewater, N. S.</i>
Dixwell, John, A. B.,	<i>Boston.</i>
Eaton, Francis Eugene,	<i>Granville, N. S.</i>
Eayrs, Marshall Perry,	<i>Boston.</i>
Finn, James Anthony, A. M. ( <i>Calvert Coll., Md.</i> ),	<i>Lowell.</i>
Foley, James Purcell, A. B. ( <i>Troy Univ., N. Y.</i> ),	<i>Salem.</i>
Fox, George Townshend, A. B. ( <i>Univ. of Mich.</i> ),	<i>Detroit, Mich.</i>
French, William Henry, A. B.,	<i>Laconia, N. H.</i>
Giles, Alfred Ellenwood, A. B. ( <i>Brown Univ.</i> ),	
LL. B. ( <i>Harv.</i> ),	<i>Hyde Park.</i>
Goodrich, Roscoe Hinman,	<i>Norwich, Conn.</i>
Granger, William Davis, A. B. ( <i>Williams Coll.</i> ),	<i>Providence, R. I.</i>
Gregg, John Areole,	<i>Somerville.</i>
Hallaren, Robert James, A. B. ( <i>St. Mary's Coll., Md.</i> ),	<i>Lowell.</i>
Harrison, Richard,	<i>St. John, N. B.</i>
Hodges, Edward Francis,	<i>Boston.</i>
Hooper, Frank Henry,	<i>Boston.</i>
Jenkins, George Oscar,	<i>Boston.</i>
Jones, Claudius Marcellus, A. B.	<i>Worcester.</i>
Kelley, Seth Wight, A. B. ( <i>Dart. Coll., N. H.</i> ),	<i>Cambridge.</i>
Kelley, Edward Joseph,	<i>Uxbridge.</i>
Kittredge, Thomas,	<i>North Andover.</i>
Lawrence, Robert Means,	<i>Boston.</i>
Leach, Charles Franklin,	<i>Cambridge.</i>
Lincoln, Guy Alvan Theodore,	<i>Boston.</i>
Libbey, George Willard,	<i>Saccarappa, Me.</i>
Martin, Stephen Crosby,	<i>Boston.</i>
McDonald, James Joseph,	<i>Lowell.</i>
Middlemas, Frank,	<i>Cornwallis, N. S.</i>
Miller, Charles John,	<i>Pictou, N. S.</i>
Montenegro, Francisco,	<i>Nicaragua, Cent. Amer.</i>
Mystwall, Duncan Barbour,	<i>Frederickton, N. B.</i>
Norfolk, Walter Jenkes,	<i>Salem.</i>
O'Leary, Michael Joseph,	<i>Brooklyn, N. Y.</i>

Perrin, Nelson, A. B. (*Brown Univ.*),  
 Sanborn, Wilbur Fisk,  
 Sherburne, John Spofford,  
 Spear, Hugh Johnston,  
 Spiller, Frederick Miles,  
 Sommerville, Alexander M.  
 Stover, Joseph William,  
 Swan, Caleb,  
 Sweat, Henry Walter,  
 Tocque, Ingham Sutcliff,  
 Thayer, Eli, Jr.,  
 Tucker, Edward Tobey, A. B. (*Brown Univ., R. I.*),  
 Turner, Edward Burhans,  
 Tyng, Stephen Higginson,  
 Wallace, William Henry,  
 Walsh, Edmund,  
 Woodworth, William Sommerville,

*Pawtucket, R. I.*  
*Sandwich, N. H.*  
*Boston.*  
*Lower Woodstock, N. B.*  
*Boston.*  
*Cornwallis, N. S.*  
*Boston.*  
*W. Bridgewater.*  
*Sandwich Centre, N. H.*  
*Toronto, Canada.*  
*Boston.*  
*New Bedford.*  
*Montague, N. J.*  
*Cambridge.*  
*Hillsborough, N. B.*  
*Summerville, P. E. I.*  
*Cornwallis, N. S.*

### DIVISION OF STUDIES.

*First year.* — Anatomy, Physiology, and General Chemistry.

*Second year.* — Medical Chemistry, Materia Medica, Pathological Anatomy, Theory and Practice of Medicine, Clinical Medicine, Surgery and Clinical Surgery.

*Third year.* — Pathological Anatomy, Therapeutics, Obstetrics, Theory and Practice of Medicine, Clinical Medicine, Surgery and Clinical Surgery.

### COURSE OF INSTRUCTION.

The following methods of instruction are adopted in the several departments : —

*Anatomy.* — Lectures ; various practical exercises, including abundant dissection under the direction of the Demonstrator ; recitations from text-books ; and histology.

*Physiology.* — Lectures, recitations, and practical demonstrations in the laboratory. To third-class students opportunities are given for original investigations in the laboratory.

*Chemistry* is taught mainly by practical work in the laboratory, each student having his own desk and apparatus. General Chemistry is taught in the first term and qualitative analysis in the second term of the first year. Besides the laboratory work, there is a lecture and a recitation every week. In the second year, medical chemistry is taught by lectures and laboratory work.



*Pathological Anatomy* is taught by lectures, recitations, and practical instruction in pathological histology. The collection of the Warren Anatomical Museum is used to illustrate the lectures, and many morbid specimens are shown in a fresh state. Students also receive practical instruction in the method of making autopsies, to which they are admitted at both hospitals. Special classes in pathological histology, including the diagnosis of tumors, are formed, students being provided with a microscope and required to prepare the various objects.

*The Theory and Practice of Medicine.* — Lectures, recitations, and hospital visits.

*Clinical Medicine.* — Daily instruction is given in this department by hospital visits and other exercises. Students are furnished with cases for personal examination, and are called upon to report them before the class, where they are criticized. These examinations are held both in the wards and in the amphitheatre. Another exercise, known as the "Clinical Conference," affords an opportunity for more thorough preparation of cases, more time being allowed for their study. The full written report of a case is read by the student who has examined it. It is afterwards criticized by the class, by the Professor of Clinical Medicine, and other teachers in the school. In addition to this, a regular course of supplementary instruction is given in Auscultation and Percussion, and in Laryngoscopy. These exercises afford students an abundant opportunity for acquiring a thoroughly practical knowledge of these methods of exploration.

*Surgery.* — Lectures and recitations. There are also courses on Surgical Anatomy, Minor Surgery, Surgical Histology, Bandaging, and Operative Surgery. In the latter, third-year students are supplied with material for repeating the usual surgical operations.

Instruction in Clinical Surgery is given at the Massachusetts General Hospital and City Hospital throughout the year as follows: —

#### FIRST TERM.

Clinical Lectures on cases, per week . . . . .	2
Surgical Visits in the hospital wards, per week . . . . .	2
Public operating days, per week . . . . .	2
Per week . . . . .	6

#### SECOND TERM.

Clinical Lectures on Cases, per week . . . . .	1
Surgical Visits in the hospital wards, per week . . . . .	3
Public operating days, per week . . . . .	3
Per week . . . . .	7

*Materia Medica and Therapeutics.*— *Materia Medica* is taught by recitations, as this mode of instruction is best adapted for imparting that practical knowledge of drugs and their properties, which can only be obtained from the examination of specimens and pharmaceutical preparations, of which there is an extensive collection. *Therapeutics*, or the physiological action of drugs and their application to disease, are taught in the third year by lectures.

*Obstetrics.*— Lectures and recitations. Students are instructed in the usual operations on the manikin, and will have opportunities to take charge of cases of midwifery in their third year.

*Diseases of Women and Children.*— Lectures.

*Mental Diseases.*— Lectures.

*Hygiene.*— A course of lectures on Hygiene is given.

*Ophthalmology.*— A complete course is delivered upon the diseases of the eye.

*Dermatology* is taught by lectures and clinical illustration. The large number of out-patients at the Massachusetts General Hospital furnishes ample opportunities for illustration.

*Syphilis.*— Recitations.

*Otology.*— Lectures.

*Laryngoscopy, Auscultation, and Percussion.*— Lectures and Demonstrations.

*Electro-therapeutics.*— Lectures with Demonstrations at the Massachusetts General Hospital.

### CLINICAL ADVANTAGES.

The Medical Department of the University is established in Boston, in order to secure those advantages for Clinical Instruction and for the study of Practical Anatomy which are found only in large cities.

There are Hospital visits or operations daily.

*The Massachusetts General Hospital.*— This Hospital was established fifty years ago. During the past year 1,300 patients were treated in the wards, and 9,500 in the out-patient departments. Patients are received from all parts of the United States and the Provinces, and are visited by the students with the attending physicians and surgeons. The opportunities for becoming acquainted with general surgery are very great. Operations are numerous, and are performed in the amphitheatre, which is provided with seats for 400 persons. Clinics in the following special branches have recently been established in connection with the out-patient department: *Dermatology, Laryngoscopy, Electro-therapeutics.*

The Hospital is adjacent to the Medical College, and its wards are open to the students on four days in the week.

*The City Hospital* was opened in 1864. During the past year 2,500 cases were treated in its wards, and 11,000 in its various out-patient departments. The Medical wards always contain many cases of acute disease, which are constantly being renewed. The opportunities for seeing fractures, injuries, and traumatic cases of all kinds are excellent, since, on an average, 400 street accidents are yearly treated. Surgical operations are performed in the amphitheatre. These include general surgical, and also ophthalmic operations. Diseases of the Eye, the Ear, and the Skin are largely treated in the out-patient department. Clinical instruction is given by the physicians and surgeons three times a week.

In these two Hospitals the facilities for witnessing Operative Surgery are unsurpassed. Twice a week in the first term, and three times a week in the second term, operations are performed in the presence of the class. The number of these operations is large, reaching nearly *two thousand* a year. The variety is great, embracing every surgical disease and injury, including the surgical operations on the eye and ear.

*The Massachusetts Charitable Eye and Ear Infirmary.* — The three thousand patients annually treated at this institution present every variety of disease of the Eye and Ear, and supply a large number of Operations.

*The Marine Hospital at Chelsea* receives from the shipping of the port a large number of patients who furnish examples of the diseases of foreign countries and of distant parts of the United States. Many cases of Venereal disease in its various stages are treated annually.

*The Boston Dispensary.* — Thirty thousand patients were treated at this Public Charity during the past year. Students have excellent opportunities to see minor surgery, many of the diseases of children, and to practise auscultation and percussion.

*Hospital Appointments.* — From eighteen to twenty students are selected annually from the class to serve as House Officers of the various Hospitals.

## EXAMINATIONS.

The regular examinations are held in the following order :—

*At the end of the first year :* Anatomy, Physiology, and General Chemistry.

*At the end of the second year :* Medical Chemistry, Materia Medica, and Pathological Anatomy.

*At the end of the third year :* Therapeutics, Obstetrics, Theory and Practice of Medicine, Clinical Medicine, Surgery, and Clinical Surgery.

The regular examinations are held at the end of each year in June, but others are also held a week before the opening of the school in

September, and at the close of the first term in February. In 1872-73 examinations will begin June 19, September 23, and February 10.

All examinations are conducted in part, at least, by questions and answers upon paper. The examination in Clinical Medicine is conducted at the bedside. For specimens of recent examination papers, see pp. 311-317. No student will receive his degree until he has passed a satisfactory examination in all the above-mentioned subjects, and presented a certificate from the Demonstrator of Anatomy that he has satisfactorily dissected the three parts of the body. Those who fail in any subject may present themselves in that subject again at the next examination.

### DIVISION OF STUDENTS.

Students who take the regular course of the School are divided into three classes, according to their time of study and proficiency. These students are classified in the catalogues.

Students may be admitted to advanced standing in the regular course, but all who apply for admission into the second or third year's class must pass an examination in the branches already pursued by the class to which they seek admission. No student shall advance with his class, or be admitted to advanced standing, until he has passed the required examination in the studies of the year, or a majority of them.

Students may be admitted to the school and become candidates for a degree without joining the regular classes, pursuing their studies in such order as may be advised. Such students may pass the required examinations either one subject at a time, several subjects at a time, or all the subjects at once, but only at the stated seasons of examination.

Students who do not intend to offer themselves for a degree will also be received at any part of the course for one term or more; or in a single department, by paying such fees as may be agreed upon.

All the subjects of the whole three years' course are taught every year, so that a student who is unable to remain in the school throughout the course may nevertheless in any one year get the benefit of all the instruction given in any of the required branches.

Any student of the school may obtain, without an examination, a certificate, which will be evidence of attendance upon lectures or time spent in study.

### REQUIREMENTS FOR A DEGREE.

Every candidate must be twenty-one years of age, and of good moral character; must give evidence of having studied medicine three full years;

have spent at least one continuous year at this school ; have presented a satisfactory thesis ; and have passed the required examinations.

### LIBRARIES.

The Library at the Medical College is open to the student on the deposit of five dollars, to be refunded to him when he may desire after returning all books.

The Library of the University is open to the students.

The Boston Public Library, which contains a large collection of medical books, may also be used by students recommended by the Dean.

### BOYLSTON MEDICAL SOCIETY.

This society, composed of medical students, meets at stated intervals for the discussion of medical topics, and is presided over by a physician selected by the members. Prizes, in money or books, are awarded annually to the writers of essays judged worthy of such distinction by a committee of physicians selected for that purpose by the society.

### FEEES AND EXPENSES.

For Matriculation, five dollars ; for a year, two hundred dollars ; for either term, one hundred and twenty dollars ; for graduation, thirty dollars. The students' expenses may be reduced, in accordance with his means, to the standard which prevails in smaller cities or country towns. In fact, students may live nearly as cheaply in Boston as elsewhere. The Janitor of the College will advise students in the selection of boarding-places, and will always have a list of such as are in the vicinity of the College Building, varying in their rate of charges.

Students who wish to join the school must enter their names with the Dean of the Faculty.

College students intending to study medicine are advised to pay special attention to the study of Natural History, Chemistry, Physics, and the French and German languages, while in College.

~~as~~ This plan went into operation on September 28, 1871, but the changes above described do not affect students who had previously entered the school, unless by their choice. No person will be allowed to graduate under the old system after the February examination of 1874. No gratuitous instruction in place of a third course of lectures will be given after the fall of 1872.

## COURSE OF STUDY FOR GRADUATES.

The Faculty have established a course, of which the following is a programme, —

For the purpose of affording to those already Graduates in Medicine, additional facilities for pursuing clinical, laboratory, and other studies, for which they had not previously found leisure, in such subjects as may specially interest them; and as a substitute in part for the opportunities heretofore sought for in Europe.

*Physiology.* — Opportunities for original investigation in the Physiological laboratory. Fee thirty dollars per Term.

*Medical Chemistry.* — Practical instruction in the Chemical laboratory in the analysis of the urine and other animal fluids in health and disease, and of poisons; examination of blood-stains and other objects connected with medico-legal investigations; with the application of the microscope to these processes. General analysis also, if desired. Laboratory Fee thirty dollars per Term.

*Pathological Anatomy.* — Practical instruction in normal and pathological Histology, in the Microscopical laboratory; and opportunity for witnessing and making autopsies. Fee twenty dollars per Term.

*Surgery.* — A practical Course of Operative Surgery and instruction in the application of bandages and apparatus. Fee fifteen dollars per Term.

*Auscultation, Percussion, and Laryngoscopy* practically taught, and diseases of the larynx demonstrated by the aid of the oxyhydrogen light. Fee twenty dollars per Term.

*Ophthalmology.* — Clinical instruction and lectures on diseases of the eye, and demonstrations of the methods of performing operations. Exercises in the use of the ophthalmoscope. Fee twenty-five dollars per Term.

*Otology.* — Lectures and clinical instruction on diseases of the ear. Fee fifteen dollars per Term.

*Hygiene.* — Lectures (in Second Term). Fee five dollars.

*Dermatology.* — Clinical instruction in diseases of the skin, illustrated by patients in this department at the Massachusetts General Hospital. Lectures. Fee twenty-five dollars per Term.

*Syphilis.* — Clinical instruction at the Boston Dispensary and the Marine Hospital. (Second Term.) Fee fifteen dollars.

*Psychological Medicine.* — Lectures on nervous and mental diseases. (Second Term.) Fee five dollars.

*Electro-therapeutics.* — Practical illustrations of the application of various forms of electricity. Lectures. Fee fifteen dollars per Term.

*Gynecology.* — Lectures on diseases of women. (Second Term.) Fee ten dollars.

*Obstetrics.* — Cases supplied. Fee ten dollars.

Those pursuing this Course may elect the studies to which they will give their attention, and allot the time they will devote to each. They will have the privilege of attending any of the other exercises of the Medical School, the use of its laboratories and library, and all other rights accorded by the University. They will be exempt, unless at their option, from examinations, and may obtain a certificate of attendance on this course of advanced study. Graduates of other Medical Schools who may desire to obtain the Degree of M. D. at this University will be admitted to examination for this Degree after a year's study in the Graduates' Course.

The Fee for a year is . . . . . \$ 200

“ for one Term . . . . . 120

And for any of the Special Courses such Fees as are above specified.

For further information address

DR. C. ELLIS, *Dean*, 114 Boylston Street, Boston, Mass.

### BOYLSTON MEDICAL PRIZE QUESTIONS.

The Boylston Medical Committee, appointed by the President and Fellows of Harvard University, consists of the following Physicians: —

JOHN JEFFRIES, M. D.

MORRILL WYMAN, M. D.

J. B. S. JACKSON, M. D.

HENRY J. BIGELOW, M. D.

D. H. STORER, M. D.

RICHARD M. HODGES, M. D.

CHAS. G. PUTNAM, M. D.

CALVIN ELLIS, M. D.

SAMUEL CABOT, M. D.

At the annual meeting of the Committee, it was voted that prizes of Two Hundred Dollars be awarded to J. COLLINS WARREN, M. D., of Boston, for a dissertation on “The Pathology of the Malignant and Semi-Malignant Growths”; and of One Hundred and Fifty Dollars to HORATIO C. WOOD, JR., M. D., of Philadelphia, for a dissertation on “The Pathology and Treatment of Sun-Stroke.”

The following are the questions proposed for 1873: —

1. *Eléctro-Therapeutics.*

2. *The Value of Chemistry to the Medical Practitioner.*

Dissertations on the above subjects must be transmitted, *post-paid*, to

John Jeffries, M. D., Boston, *on or before the first Wednesday in April, 1873.*

The author of a dissertation considered worthy of a prize, on either of the subjects proposed for 1873, will be entitled to a premium of One Hundred and Fifty Dollars.

The following are the questions proposed for 1874 : —

1. The best Methods of Preventing the Development and Spread of Smallpox.

The author of a dissertation on this subject, considered worthy of a prize, will be entitled to a premium of Two Hundred Dollars.

2. The Development and Extension of Malignant Disease.

The author of a dissertation on this subject, considered worthy of a prize, will be entitled to a premium of One Hundred and Fifty Dollars.

Dissertations on these subjects must be transmitted as above, on or before the first Wednesday in April, 1874.

Each dissertation must be accompanied by a sealed packet, on which shall be written some device or sentence, and within which shall be enclosed the author's name and residence. The same device or sentence is to be written on the dissertation to which the packet is attached.

The writer of each dissertation is expected to transmit his communication to the President, John Jeffries, M. D., in a legible handwriting, and with the pages properly secured together, within the time specified.

Any clew by which the authorship of a dissertation shall become known to the Committee will debar such dissertation from competition.

All unsuccessful dissertations are deposited with the Secretary, from whom they may be obtained, with the sealed packet unopened, if called for within one year after they have been received.

By an order adopted in 1826, the Secretary was directed to publish annually the following votes : —

1st. That the Board do not consider themselves as approving the doctrines contained in any of the dissertations to which premiums may be adjudged.

2d. That in case of publication of a successful dissertation, the author be considered as bound to print the above vote in connection therewith.

RICHARD M. HODGES, M. D., *Sec'ry.*



# DENTAL SCHOOL.

BOSTON.

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## FACULTY.

CHARLES W. ELIOT, LL.D., *President.*  
OLIVER W. HOLMES, M.D., *Professor of Anatomy.*  
HENRY J. BIGELOW, M.D., *Professor of Surgery.*  
THOMAS H. CHANDLER, D.M.D., *Professor of Mechanical Dentistry.*  
GEORGE T. MOFFATT, M.D., D.M.D., *Professor of Operative Dentistry.*  
THOMAS B. HITCHCOCK, M.D., D.M.D., *Dean, and Professor of Dental Pathology and Therapeutics.*  
HENRY P. BOWDITCH, M.D., *Assistant Professor of Physiology.*  
LUTHER D. SHEPARD, D.D.S., *Adjunct Professor of Operative Dentistry.*  
NATHANIEL W. HAWES, *Assistant Professor of Operative Dentistry.*  
EDWARD S. WOOD, M.D., *Assistant Professor of Chemistry.*

## LECTURERS.

EDWARD A. BOGUE, M.D., *on Dental Pathology and Therapeutics.*  
IRA A. SALMON, D.D.S., *on Operative Dentistry.*

## DEMONSTRATORS.

SAMUEL FRANKLIN HAM, D.M.D., *Demonstrator of Mechanical Dentistry.*  
CHARLES BURNHAM PORTER, M.D., *Demonstrator of Anatomy.*  
CHARLES WILSON, D.M.D., *Demonstrator in Charge.*

### STUDENTS.

Battles, Willis Porter,  
Boyden, Edward Augustus,  
Brackett, Charles Albert,  
Carr, Edward Dwight,  
Dimmick, Edward Augustus,  
Eddy, Forrest Greenwood,  
Frost, Edward Eastman,

### RESIDENCE.

*Boston,*  
*So. Walpole,*  
*So. Ackworth, N. H.,*  
*Truxton, N. Y.*  
*Newburyport,*  
*Providence,*  
*Worcester,*

### INSTRUCTORS.

Dr. J. W. Bartlett.  
" J. W. Bartlett.  
" S. C. Taylor.  
" C. R. Peck.  
" W. H. Noyes.  
" E. S. Eddy.  
" J. W. Gould.

Haselton, John Willard,	<i>Salem,</i>	Dr. J. E. Fiske.
Horn, Franklin Nicholas,	<i>Boston,</i>	" D. F. Drake.
Hussey, Samuel John,	<i>Hartford, Ct.,</i>	" L. & G. L. Parmele.
Knowles, George Henry,	<i>Newburyport,</i>	" J. M. Brown.
Lamb, Hiram Oscar,	<i>Salem,</i>	" W. L. Bowdoin.
Libby, Henry Forrest,	<i>Boston,</i>	" S. J. McDougall.
Mathes, Levi Augustus,	<i>Woonsocket, B. I.,</i>	" R. W. Small.
McLean, Edward Perley,	<i>Amherst, N. S.,</i>	" W. L. Johnson.
Parker, Wilbur Bates,	<i>Boston,</i>	" Daniel Harwood.
Pomroy, Frank Elmore,	<i>West Townshend, Vt.</i>	" O. B. Post.
Pond, Metcalf Everett,	<i>Boston,</i>	" I. J. Wetherbee.
Ripley, Thomas Parker,	<i>Newport, Vt.,</i>	" Heald & Dorr.
Rollins, William Herbert,	<i>Lawrence,</i>	" J. W. Kidder.
Salmon, George Allen,	<i>Boston,</i>	" I. A. Salmon.
Sears, Walter Hastings,	<i>Worcester,</i>	" S. W. Cooke.
Selfridge, Edward Christopher,	<i>Newburyport,</i>	" W. H. Noyes.
Tiexeira, Francis Joseph,	<i>New Bedford,</i>	" C. V. Macleod.
Wait, Herbert Clifton,	<i>Springfield,</i>	" H. M. Miller.
Wolfe, Charles Herman,	<i>Liverpool, N. S.,</i>	" H. A. Parr.

The Dental School of Harvard University, established in Boston, gives to its students unusual facilities for instruction in Anatomy and Physiology, Surgery and Chemistry, inasmuch as the Dental student pursues the same course in these branches which is required of the Medical student, and has free access to the Hospitals of the city, and to the Dissecting Rooms, Library, and Museum of the Medical College. The Professors teach by lectures, recitations, and clinics, and, under the direction of Demonstrators, patients are assigned to the students, who thus have an opportunity of operating at the chair, and becoming familiar by actual practice with all operations demanded of the dental practitioner.

The regular Winter Course commences the last Thursday in September, and continues nineteen weeks. The Summer Course commences upon the close of the Winter Session, and continues till the last Wednesday in June.

The Infirmary is open throughout the year.

### COURSE OF INSTRUCTION.

The following methods of study have been adopted in the various departments : —

*Anatomy and Physiology.* — Lectures, largely illustrated by the anatomical preparations and models of the Warren Museum, and by an extensive

series of colored drawings and diagrams ; various practical exercises including abundant dissection under the direction of the demonstrator ; recitations from text-books ; and histology.

*Physiology.* — Lectures, recitations, and practical demonstrations in the laboratory. A new physiological laboratory has been fitted up under the supervision of an able teacher, who devotes his whole time to this department.

*Chemistry.* — Will be taught mainly by practical work in the laboratory, each student having his own desk and apparatus. Besides the laboratory-work, there will be a lecture and recitation every week.

*Surgery.* — Lectures and recitations. The surgical lectures are illustrated by a magnificent collection of colored drawings, and by recent and morbid specimens. All the new and approved surgical instruments and apparatus are exhibited, and their use explained. In addition to operations on the living subject at the hospitals, operative surgery is taught, and operations are performed upon the dead body, as a part of the illustrations of the surgical lectures.

*Operative Dentistry.* — The instructions in this department are both didactic and practical. — The Professor and assistants endeavor to demonstrate all known methods of performing operations upon the teeth and other tissues involved.

The development of the teeth, treatment of irregularities, origin and treatment of decay, materials used for filling teeth, the most improved instruments used in operating, &c., are appropriately treated of. Clinics are held at the Infirmary, and every available means used to make the student practically acquainted with all the modern improvements of this important branch of Dental Science.

*Dental Pathology and Therapeutics.* — The instruction from this chair embraces the application of the general principles of medicine to the specialty of dentistry ; the therapeutical agents used in dentistry ; the various pathological conditions of the dental and contiguous tissues ; the relative liability of teeth to disease ; the predisposing and exciting causes and the chemistry of dental caries ; the pathology and treatment of sensitive dentine ; of pulpitis ; of periodontitis ; and of alveolar abscess. A course of lectures on some special subjects relating to dental pathology and therapeutics is delivered during the winter by the University lecturer in this department. The lectures are illustrated, not only by the aid of the collection of pathological specimens belonging to the school, but also by models and diagrams.

Instruction is also given in microscopy as applied to dental histology ; a valuable collection of microscopical objects being used to illustrate the formation and structure of the dental tissues.

*Mechanical Dentistry.*—Lectures and practical work in the laboratory ; the manner in which mineral teeth are constructed to meet all cases, both special and general ; the principles and method of carving and furnace work, and all compounds used for artificial teeth ; also metallurgy, and the manner in which gold and silver plates are prepared and adapted to the mouth ; the use of rubber and other articles as bases. It is the aim of the Professor to teach, not only the mere mechanical process of Dentistry, but that combination of art with mechanism which enables the practitioner to effect so much in restoring the symmetry of the face and usefulness of the teeth where they have been lost or impaired by accident or disease.

### SUMMER SESSION.

To meet the constantly increasing demand for facilities for dental instruction, it has been thought best to establish, besides the regular winter session, a course of study and practical exercises during the four months next ensuing after the winter course.

This course is not a regular course of the school included in the conditions for graduation, but is designed as an equivalent, entirely or in part, for pupilage with private preceptors, and it offers a wider and more thorough instruction than can be had in private offices.

Instruction will be given in Anatomy, Physiology, and Surgery, by lectures, demonstrations, and recitations. Practical Anatomy will be taught in the Dissecting Room until May.

The Infirmary and Laboratory will be open daily (Saturdays and Sundays excepted), and the large number of patients who have availed themselves of the facilities for operations during the winter courses insures sufficient material for practice.

### QUALIFICATIONS FOR GRADUATION.

The degree of Doctor of Dental Medicine (*Dentariæ Medicinæ Doctor*) may be conferred upon each candidate of adult age, of good moral character, who shall have pursued his professional studies three years under competent instructors, and attended two full courses in this institution ; except that a certificate of attendance upon one course of lectures in any respectable Dental or Medical College may be considered a substitute for the first course ; provided such candidate maintain a thesis, and undergo an examination to the satisfaction of the Faculty, and convince the Professors of Operative and Mechanical Dentistry of his ability to meet satisfactorily the requirements of his art.

He must also deposit with the Dean, to be placed in the Museum of the College, a specimen of mechanical dentistry, or of practical or pathological anatomy, prepared during the course under the eye of the instructor.

## FEES.

Matriculation Fee, paid but once . . . . .	\$ 5.00
Summer Session . . . . .	50.00
Winter Session . . . . .	110.00
For the year . . . . .	150.00
Graduation Fee . . . . .	30.00

For further information, address

THOS. B. HITCHCOCK, M. D., D. M. D., *Dean,*  
222 Tremont St., Boston, Mass.

# BUSSEY INSTITUTION.

JAMAICA PLAIN.

A SCHOOL OF AGRICULTURE AND HORTICULTURE.

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## INSTRUCTORS.

ASA GRAY, LL. D., *Professor of Botany.*

THOMAS MOTLEY, *Instructor in Farming.*

FRANCIS PARKMAN, A. M., *Professor of Horticulture.*

DANIEL D. SLADE, M. D., *Professor of Applied Zoölogy.*

FRANCIS H. STORER, A. M., *Professor of Agricultural Chemistry, and  
Dean.*

—————, *Professor of Topographical Engineering.*

NATHANIEL S. SHALER, S. B., *Instructor in Zoölogy.*

FRANCIS G. SANBORN, *Instructor in Entomology.*

WILLIAM H. PETTEE, A. M., *Instructor in Geography.*

GEORGE L. GOODALE, A. M., *Instructor in Botany.*

JOHN TROWBRIDGE, S. B., *Assistant Professor of Physics.*

CHARLES L. JACKSON, A. M., *Assistant Professor of Chemistry.*

PIERRE J. BORIS, *Instructor in French.*

GEORGE T. DIPPOLD, *Instructor in German.*

FRANK PLUMMER PEARSON, *Assistant in the Laboratory of Agricultural  
Chemistry.*

MARCELLO HUTCHINSON, A. B., *Assistant in the Laboratory of  
Agricultural Chemistry.*

THE School of Agriculture and Horticulture, established in execution of the Trusts created by the will of Benjamin Bussey, will give thorough instruction in Agriculture, Useful and Ornamental Gardening, and Stock Raising. In order to give the student a sound basis for a thorough knowledge of these Arts, the School will supply instruction in Physical Geography, Meteorology, and the elements of Geology, in Chemistry and Physics, in the elements of Botany, Zoölogy, and Entomology, in Leveling and Road-building, and in French and German.

This school is intended for the following classes of persons :—

1. Young men who intend to become practical farmers, gardeners, florists, or landscape gardeners.

2. Young men who will naturally be called upon to manage large estates, — such as the sons of large farmers and of city men who own country-places.

3. Young men of character, good judgment, and native force, who have neither taste nor aptitude for literary studies, but, being fond of country life and observant of natural objects, would make, when thoroughly trained, good stewards or overseers of gentlemen's estates.

4. Teachers, or young men preparing to be teachers, who expect to be called upon to teach some of the subjects taught in this school.

5. Persons who wish to familiarize themselves with some special branch of agriculture, horticulture, or applied zoölogy.

The regular course of study, to be pursued by candidates for a degree, will fill three years. The instruction of the first year's course will be given at the Lawrence Scientific School, in Cambridge, and students of the first year must live in or near Cambridge. The instruction of the second and third year's courses will be given at the Bussey Institution, and students of the second and third years must live near the Institution, which is situated in the town of West Roxbury, near the village of Jamaica Plain, about five miles southwest of Boston, and close to the Forest Hills station on the Boston and Providence Railroad.

### REQUISITES FOR ADMISSION.

Candidates for admission to the first year of the regular course of the School must be at least seventeen years of age, and must present testimonials of good moral character; they will be examined in Arithmetic, Algebra as far as quadratic equations, English Grammar, and Geography. Candidates for admission to the second year of the regular course must be at least eighteen years of age, and must present testimonials of good moral character; they will be examined upon the studies of the first year in addition to the above-mentioned subjects.

*Examinations for admission will be held on Thursday, June 26, and Thursday, September 25, 1873, at Lawrence Hall, Cambridge, beginning at 9 A. M.*

Any person, who is not less than eighteen years old, may join the School, without examination, to pursue any special course or courses of instruction which he is qualified to pursue with advantage; but such special students will not be regarded as candidates for a degree.

### BOND OR DEPOSIT.

Every student, when admitted, if he be a candidate for a degree, must give a bond in the sum of two hundred dollars to pay all charges accruing

under the laws and customs of the University. The bond must be executed by two bondsmen, who must be satisfactory to the Steward, and one of whom must be a citizen of Massachusetts. Instead of filing a bond, a student may pay his tuition-fee for the year in advance, and deposit such a sum of money, not exceeding fifty dollars, as may be deemed sufficient to secure the payment of other School dues.

Special students will pay the tuition-fees in advance at the Steward's office, in Cambridge, or to Prof. F. H. Storer, Dean, at the Bussey Institution.

### INSTRUCTION.

Instruction will be given by lectures and recitations, and by practical exercises in the laboratory, the greenhouse, and the field. Examinations will be held stately, to test the student's proficiency.

#### REGULAR FIRST YEAR'S COURSE (AT CAMBRIDGE).

*Physical Geography, Structural Geology, and Meteorology*, Assistant Professor PETTEE.

*General Chemistry and Qualitative Analysis*, Assistant Professor JACKSON.

*The Elements of Physics*, Assistant Professor TROWBRIDGE.

*Levelling and Road-making*, ————.

*The Elements of Botany*, Professor GRAY and Dr. GOODALE.

*The Elements of Zoölogy*, Professor SHALER.

*The Elements of Entomology*, Mr. SANBORN.

*French*, Mr. BORIS.

*German*, Mr. DIPPOLD.

#### SECOND YEAR'S COURSE (AT WEST ROXBURY).

*Theory and Practice of Farming* . . . . . Mr. MOTLEY.

Preparation and care of manures and composts. Breeding and care of neat stock, with special reference to the dairy. Breeding of horses and swine. Preparation of the ground for root crops, hay, and grain. The sowing and planting of different seeds and roots for farm use. Field work with ploughs, harrows, and seed-sowers. Harvesting of hay and grain. Use of mowing-machines, hay-tedders, horse-rakes, &c. Examination of agricultural implements. Farm accounts.

*Horticulture* . . . . . Professor PARKMAN.

Propagation of plants ; the methods of practising it, and the principles on which they rest. Propagation by seed ; by cuttings ; by layers ; by budding, grafting, and inarching. Methods of obtaining new varieties



of fruits, flowers, and vegetables. Horticultural glass-houses, their construction and management. The flower garden :—perennial flowering shrubs and trees ; bedding plants ; foliage plants ; the rose ; the lily ; the rhododendron ; the azalea ; the gladiolus, &c. The fruit garden :—the strawberry, raspberry, peach, grape, apple, pear, &c. Nurseries and their management. Manual practice of horticultural operations.

*Agricultural Chemistry* . . . . . Professor STOREE.

Soil, air, and water, in their relations to the plant. The food of plants ; manures, general and special. Chemical principles of tillage, irrigation, systems of rotation, and of special crops and farms.

*Applied Zoölogy* . . . . . Professor SLADE.

The anatomy and physiology of domestic animals. Their proper management in health and disease. Epidemics, — their nature, progress, mode of introduction, and proper treatment.

*Entomology* . . . . . Mr. SANBORN.

Habits or economy, anatomy and transformations of insects ; their embryonic development, and their relations to the surrounding world. Means of controlling or keeping in check the increase of injurious species. Systems of classifications. Collection and preservation of specimens.

*Quantitative Analysis* . . . . . Professor STOREE.

Laboratory practice. Methods of analyzing rocks, manures, plants, milk, &c., and of investigating problems in agricultural chemistry.

During the first year of the regular course the student will be expected to pursue with equal diligence all the subjects prescribed for that year ; but during the second and third years the student's course of study, particularly as regards the amount and direction of his manual practice, may be varied at the discretion of the instructors, in accordance with the student's aims and purposes.

Women will be admitted to the lectures on horticulture, agricultural chemistry, and entomology, at the Bussey Institution.

### FEEES AND EXPENSES.

The regular fee for the Academic year will be one hundred and fifty dollars ; for half or any less fraction of a year, seventy-five dollars ; for any fraction of a year greater than one half, the fee for the whole year

will be charged. The fees for special courses of instruction are as follows :—

On Farming . . . . .	\$40.00 for the year, or \$20.00 for the half-year.
On Horticulture . . . . .	40.00 " " " " "
On Agricultural Chemistry . . . . .	40.00 " " " " "
On Applied Zoölogy . . . . .	40.00 " " " " "
On Entomology . . . . .	20.00 for the last half of the year.

For Laboratory instruction in Quantitative Analysis (including the course on Agricultural Chemistry), \$150.00 for the year.

The tuition fees will be freely remitted to poor and meritorious students.

The other expenses of a student for an academic year may be estimated as follows :—

Room . . . . .	from \$30.00 to \$100.00
Board for 38 weeks . . . . .	" 152.00 " 304.00
Text-books . . . . .	" 20.00 " 25.00
Fuel and Lights . . . . .	" 25.00 " 35.00
Washing . . . . .	" 19.00 " 38.00
	<hr/>
	\$ 246.00 " \$ 502.00

The teachings of the School will be amply illustrated by the rich scientific collections of the University, and by a botanic garden, a large and profitable farm, greenhouses, propagating-houses, and field experiments. The single object of the School is to promote and diffuse a thorough knowledge of Agriculture and Horticulture.

## THE MASTER'S AND DOCTORS' DEGREES.

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### CANDIDATES FOR THE DEGREES OF A. M., PH. D., AND S. D.

DAVENPORT, J. M., A. B. (*Univ. of Nashville*, 1871), for A. M. (General Course).

PENNELL, ROBERT FRANKLIN, A. B. (1871), for A. M. (Philology).

WAIT, LUCIEN AUGUSTUS, A. B. (1870), for A. M. (Mathematics).

BYERLY, WILLIAM ELWOOD, A. B. (1871), for PH. D. (Mathematics).

EVERETT, WILLIAM, A. B. (1859), for PH. D. (Philology).

FIELD, ALFRED WITHINGTON, A. B. (1872), for PH. D. (Physics).

GOOCH, FRANK AUSTIN, A. B. (1872), for PH. D. (Physics).

HUTCHINSON, MARCELLO, A. B. (1872), for PH. D. (Physics).

SHELDON, EDWARD STEVENS, A. B. (1872), for PH. D. (Philology).

WHITNEY, CHARLES LEAVITT BEALS, A. B. (1871), for PH. D. (History).

FAXON, WALTER, A. B. (1871), S. B. (1872), for S. D. (Natural History).

MINOT, CHARLES SEDGWICK, S. B. (*Mass. Inst. Technology*, 1872), for S. D. (Natural History).

MUNROE, CHARLES EDWARD, S. B. (1871), for S. D. (Physics).

SHALER, NATHANIEL SOUTHGATE, S. B. (1862), for S. D. (Natural History).

TROWBRIDGE, JOHN, S. B. (1865), for S. D. (Mathematics and Physics).

# RESIDENT GRADUATES

## ATTENDING COLLEGE COURSES OF INSTRUCTION.

- AMES, JAMES BARR, A. M., LL. B. *Latin*, 7.  
 BRANNAN, JOSEPH DODDRIDGE, A. M., LL. B. *History*, 3.  
 BYERLY, WILLIAM ELWOOD, A. B. *Mathematics*, 8, 9 (as University Lectures); *Physics*, 4.  
 DIPPOLD, GEORGE THEODORE. *Sanskrit*.  
 ELDER, WILLIAM, A. M. (*Acadia Coll., N. S.*) *Physics*, 2.  
 EVERETT, WILLIAM, A. M. *Hebrew*; *Latin*, 7.  
 FESSENDEN, FRANKLIN GOODRIDGE, LL. B. *History*, 4.  
 FIELD, ALFRED WITHINGTON, A. B. *Physics*, 2.  
 GOOCH, FRANK AUSTIN, A. B. *Physics*, 2.  
 GOULD, ALLEN WALTON, A. B. *Greek*, 5; *Philosophy*, 3.  
 SHELDON, EDWARD STEVENS, A. B. *French*, 4.  
 STONE, PHILIP SIDNEY, A. B. *French*, 4.  
 WHEELER, HENRY NATHAN, A. B. *Mathematics*, 4.  
 WHITNEY, CHARLES LEAVITT BEALS, A. B. *History*, 4.

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## GRADUATE SCHOLARS.

- BYERLY, WILLIAM ELWOOD, A. B.  
 WHITNEY, CHARLES LEAVITT BEALS, A. B.

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## OTHER RESIDENT GRADUATES.

- BABCOCK, WILLIAM GUSTAVUS, A. B.  
 HASKINS, DAVID GREENE, A. M.  
 LOWBER, J. W. •  
 MANN, BENJAMIN PICKMAN, A. B.  
 NILES, WILLIAM HARMON, PH. B. (*Yale Coll.*); A. M. (*Wesleyan, Univ., Ct.*)

## THE DEGREES OF MASTER OF ARTS, DOCTOR OF PHILOSOPHY, AND DOCTOR OF SCIENCE.

THESE degrees are conferred on candidates recommended by the Academic Council, a body composed of the President, Professors, Assistant Professors, and Adjunct Professors of the University. They are conferred upon examination only, and in conformity with the following rules:—

The degrees of Master of Arts and Doctor of Philosophy are open to Bachelors of Arts of Harvard College, and to Bachelors of Arts of other Colleges who shall have satisfied the College Faculty, by examination, that the course of study for which they received the Bachelor's degree is equivalent to that for which the Bachelor's degree is given in Harvard College, or shall have passed such additional examinations as that Faculty may prescribe.

The degree of Doctor of Science is open to Bachelors of Science of Harvard University, and to Bachelors of Science and Bachelors of Philosophy of other institutions who shall have satisfied the Faculty of the Lawrence Scientific School, by examination, that the course of study for which they received the Bachelor's degree is equivalent to that for which the degree is given in Harvard University, or shall have passed such additional examinations as that Faculty may prescribe.

The Academic Council will recommend for the degree of Doctor of Philosophy candidates otherwise properly qualified, who, after taking the Bachelor's degree, shall pursue at Harvard University for two years a course of liberal study, approved by the Council, in any one of the following departments, — Philology, Philosophy, History, Political Science, Mathematics, Physics, or Natural History, — shall pass a thorough examination on that course, and shall present a satisfactory thesis.

The Academic Council will recommend for the degree of Doctor of Science candidates otherwise properly qualified, who, after taking their Bachelor's degree, shall reside at least two years at the University, and pursue during three years a course of scientific study, embracing at least two subjects, and approved by the Council, and shall pass a thorough examination upon that course, showing in one of the subjects special attainments, and shall also make some contribution to science, or some special scientific investigation; provided, however, that a course of study of two years only shall suffice for candidates who are both Bachelors of Arts and Bachelors of Science of Harvard University.

The Academic Council will recommend for the degree of Master of Arts candidates otherwise properly qualified, who, after taking the Bachelor's degree, shall pursue for at least one year at the University a course of liberal study approved by the Council, and shall pass a thorough examination on that course.

The Academic Council will also recommend for the degree of Master of Arts candidates otherwise properly qualified, who shall pursue at the University for at least one year, after taking the degree of Bachelor of Laws or Bachelor of Divinity in Harvard University, a course of study in Law or Theology, approved by the Council, and shall pass a thorough examination on that course.

In special cases the Academic Council is authorized to remit the requirement of residence at the University to Bachelors of Arts or Science of Harvard University.

Any one who wishes to be a candidate for either of these degrees must apply in writing to PROFESSOR J. M. PEIRCE, *Secretary of the Academic Council*, stating explicitly in his application his present qualifications, and the course of study which he intends to offer, naming also the year in which he desires to be examined, and the period of his past or proposed residence at the University.

The meetings of the Academic Council are held on the third Wednesdays of October and February, and the Thursday before Commencement. Applications can only be considered at these meetings, and, in order to be considered, must be in the hands of the Secretary *one fortnight before the date of the meeting*. The examinations will be held at times appointed by the Council, near the end of each academic year.

#### INSTRUCTION OPEN TO GRADUATES.

All the elective courses of study in Harvard College are open to Bachelors of Arts of any college, on the payment of certain fees. The lists of elective courses for each academic year are issued in April of the preceding academic year, and may be had on application to MR. J. W. HARRIS, *Secretary*. The list for the current year is given on pages 66-73.

Advanced students will be received into the botanical laboratory in charge of Prof. Gray, the chemical laboratory in charge of Prof. Cooke, the physical laboratory in charge of Prof. Gibbs, the physiological laboratory (at Boston) in charge of Assistant Prof. Bowditch, and into the Museum of Comparative Zoölogy. At the Museum, Prof. Hagen's laboratory of Entomology is open to properly qualified students. Prof. Shaler

makes geological excursions every Saturday throughout the year, when the weather permits:

### FEES AND BONDS.

The fees to be paid by Bachelors of Arts or Science who receive instruction as candidates for the degree of Master of Arts, Doctor of Philosophy, or Doctor of Science, or who attend lectures or recitations without being members of either professional school, are as follows:—

For not more than three hours of instruction a week . .	\$ 50.00 a year.
For more than three, but not more than six hours of instruction a week . . . . .	\$ 90.00 a year.
For more than six hours of instruction a week . . .	\$ 120.00 a year.
For a year's instruction in any of the laboratories or in the Museum of Comparative Zoölogy . . . . .	\$ 150.00.
For the examination for the degree of Master of Arts . . . .	30.00.
For the examination for the degree of Doctor of Philosophy . .	60.00.
For the examination for the degree of Doctor of Science . . . .	60.00.

There is no additional charge for the right to use the Library. The fees for instruction will be remitted to meritorious students who need such help.

Graduates of the University, or of other collegiate institutions, desirous of pursuing their studies at Cambridge without any guidance, may enjoy the use of the Library on the payment of five dollars a year; but residence on these terms will not be accepted as residence qualifying for the degree of Master of Arts, Doctor of Philosophy, or Doctor of Science.

All Bachelors of Arts, Science, or Philosophy, studying at the University, must give bonds in the sum of \$ 200, signed by two bondsmen, one of whom must be a citizen of Massachusetts, for the payment of all dues to the University; but, instead of filing a bond, any student who prefers so to do may pay his fees in advance, and deposit with the Steward such a sum of money as may be deemed sufficient to secure payment of all other dues to the University.

### REGISTRATION. — ROOMS.

All who attend courses of instruction at the University without being members of the College, or of any professional school, *whether they are candidates for a degree or not*, must enter their names at the Steward's Office, before beginning their attendance, and state to him in writing what course, or courses, of instruction they propose to attend.

Graduates of Harvard College may occupy rooms in College buildings, if they wish, on the same terms as undergraduates.

#### GRADUATES' SCHOLARSHIPS.

THE HARRIS FELLOWSHIP has an endowment of ten thousand dollars, the yearly income of which is to be applied under the following conditions established by the founder : —

“That this income be given to some Graduate of acknowledged excellence in one or more departments of literature or science (but not necessarily of the highest College rank) for one or more years ; that the recipient satisfy the Corporation of his need of such aid, and his purpose to make the most of it ; that residence at Cambridge be required unless excused for substantial reasons, and that marriage be a disqualification ; that studies for the professions of law, theology, or medicine be excluded from the studies of the recipient, and that the Corporation be authorized to make such other restrictions and conditions as in its judgment will best secure from the recipient his entire devotion to accurate scholarship or the higher branches of science.”

THE GRADUATES' SCHOLARSHIP has an endowment of twenty thousand dollars, the income of which is to be used in accordance with the following directions given by the founder : —

“ . . . . For the encouragement and attainment of a higher, broader, and more thorough scholarship than is required or expected of Undergraduates, in all sound literature and learning, except science strictly so called. . . . .

“1. I direct that the Corporation, from time to time, shall select from the Senior Class the member who, from his natural gifts, attainments, and general character, intellectual and moral, they, after consultation with the Faculty of the College, shall deem best fitted to attain the object contemplated by this donation, and shall offer to him from said income and profits an annual grant of money upon the following conditions, viz. : —

“That he shall reside at Cambridge, and shall faithfully devote his time and thoughts to the pursuit of such branches and courses of study as he, with the approbation of the Corporation, may select. That whilst a recipient of this grant he shall engage in no studies designed to prepare him for a special profession, nor in any other business or occupation except that of a Proctor of the College, — or an occasional examiner of some of the classes, at the request of the Corporation. That, from time to time, he shall be subject to be called upon to give such evidence of his



fidelity and proficiency as the Corporation may require, and especially to write essays and dissertations upon such subjects, within the circle of his studies, as they shall designate, and these, when completed, shall be at their disposal.

"2. I direct that the grant shall be from year to year, and that the amount thereof, in the first instance, shall not exceed the sum of eight hundred dollars. . . ."

# MUSEUM OF COMPARATIVE ZOÖLOGY

AT HARVARD COLLEGE.

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## TRUSTEES.

THE Governor and Lieutenant-Governor of Massachusetts, the President of the Senate, the Speaker of the House of Representatives, the Secretary of the Board of Education, the Chief Justice of the Highest Judicial Court, *ex officio*;

LOUIS AGASSIZ and THEODORE LYMAN,  
Elected by a concurrent vote of the General Court;

NATHANIEL THAYER,  
SAMUEL HOOPER,  
JAMES LAWRENCE,

C. W. FREELAND,  
SAMUEL ELIOT,  
MARTIN BRIMMER,

ALEXANDER E. R. AGASSIZ,  
Elected by the Board of Trustees.

## FACULTY.

CHARLES W. ELIOT, LL. D., *President*.

LOUIS AGASSIZ, LL. D., *Curator*.

JOHN B. S. JACKSON, M. D.

OLIVER WENDELL HOLMES, M. D.

JEFFRIES WYMAN, M. D.

## OFFICERS.

LOUIS AGASSIZ, LL.D., *Curator and Director*.

THEODORE LYMAN, S. B., *Assistant in Zoölogy*.

ALEXANDER E. R. AGASSIZ, S. B., *Assistant in Zoölogy*.

JOHN GOULD ANTHONY, *Assistant in Conchology*.

NATHANIEL S. SHALER, S. B., *Assistant in Palæontology*.

HERMANN A. HAGEN, M. D., PH. D., *Assistant in Entomology*.

GEORGE AUGUSTUS MAACK, PH. D., *Assistant in Palæontology*.

FRANZ STEINDACHNER, PH. D., *Assistant in Ichthyology*.

JOEL ASAPH ALLEN, *Assistant in Ornithology*.

This institution was founded in 1859. It is under the direction of the Faculty, while the property is held by the Trustees. The Lawrence Professor of Zoölogy in the Scientific School is, *ex officio*, Curator, and charged with the direction of the scientific and educational interests of the Museum. The Director is appointed by the Trustees, and is charged with the relations of the Museum to the public. The Assistants are appointed by the Faculty. The collections, so far as arranged in the part of the building already erected, are open to visitors every day except Sundays.

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## PEABODY MUSEUM OF AMERICAN ARCHÆOLOGY AND ETHNOLOGY.

### TRUSTEES.

ROBERT C. WINTHROP, LL. D., *Chairman*.

CHARLES FRANCIS ADAMS, LL. D.

STEPHEN SALISBURY, A. M., *Treasurer*.

ASA GRAY, LL. D.

JEFFRIES WYMAN, M. D., *Curator*.

GEORGE PEABODY RUSSELL, LL. B., *Secretary*.

HENRY WHEATLAND, M. D.

In the original Instrument of Trust the Founder has assigned to the Trustees three distinct duties :—

1. The forming and preserving of collections.
2. The nomination of a Professor who shall have charge of the collections, and deliver lectures on subjects connected with them, the said Professor being appointed by the President and Fellows of Harvard College.
3. The erection of a building for a Museum.

The Museum cannot be undertaken till the \$ 60,000 devoted to it shall be increased to at least \$ 100,000. No Professor having been appointed, the income from the fund for his support has thus far been appropriated, in accordance with the directions of the Founder, to the care and increase of the collections.

Large collections pertaining to Archæology and Ethnology of the Old World and the New have been made. These have heretofore been kept in storage for want of a suitable room for their exhibition. The recent addition of a new story to Boylston Hall has supplied this deficiency, and selections from the stores of the Museum are now publicly displayed.

# EPISCOPAL THEOLOGICAL SCHOOL.

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## OFFICERS.

### BOARD OF TRUSTEES.

EDWARD S. RAND, *President.*

ROBERT C. WINTHROP,      AMOS A. LAWRENCE, *Treas.*,  
JOHN P. PUTNAM,      JAMES S. AMORY.

### BOARD OF VISITORS.

ROBERT M. MASON,  
GEORGE C. SHATTUCK, M. D.

## FACULTY.

- REV. JOHN S. STONE, D. D., *Dean, and Professor of Systematic Divinity and Apologetics.*  
REV. FRANCIS WHARTON, D. D., LL. D., *Professor of Ecclesiastical Polity, Homiletics, and Pastoral Care.*  
REV. P. H. STEENSTRA, *Professor of Hebrew, and of Biblical Criticism and Interpretation.*  
REV. A. V. G. ALLEN, *Professor of Ecclesiastical History.*

## STUDENTS.

### Senior Class.

Bacchus, John Greenwood, A. B. ( <i>Kenyon Coll., O.</i> ),	<i>Baltimore, Md.</i>
DeCormis, Louis, A. B. ( <i>Kenyon Coll., O.</i> ),	<i>Baltimore, Md.</i>
Killikelly, Bryan Bernard,	<i>Kittaning, Pa.</i>
Stevens, Lorenzo Gorham, A. B.,	<i>Roxbury.</i>
Beard, Ithamar, A. B.,	<i>Lowell, Mass.</i>

### Middle Class.

Miller, Everard Patterson, A. B. ( <i>Penn. Univ.</i> ),	<i>Philadelphia, Pa.</i>
Tyng, Theodosius Stevens, A. B., LL. B., ( <i>Kenyon Coll., O.</i> ),	<i>Cambridge.</i>

**Junior Class.**

Degen, George Frederick, A. B. ( <i>Griswold Coll., Iowa</i> ),	<i>Cambridge.</i>
Hooper, William Robert, A. B.,	<i>Worcester, Mass.</i>
Nicholson, Charles McIlvaine, A. B.,	<i>Cambridge.</i>

**EXPENSES.**

Board and washing in the establishment are the only items of expense for which provision will be rendered necessary by residence during term time ; tuition, room-rent, fuel, and lights, and principal furniture being free. The use of text-books also will be allowed to such as are unable to purchase them ; while from Church-Education Societies students who present the required testimonials will receive adequate aid. The students are entitled to all the privileges of resident graduates in the use of the Library of Harvard College and admission to lectures.

**TERM TIME.**

The annual term opens on the third Wednesday in September, and closes on the last Wednesday in June.

**VACATION AND RECESSES.**

From the last Wednesday in June to the third Wednesday in September is *Vacation*.

From the 24th of December to the 1st of January, inclusive, the *Christmas Recess* ; and from the Saturday next before Palm Sunday to Easter Tuesday, inclusive, the *Easter Recess*.

On Ash Wednesday, likewise, and on days of special thanksgiving and fasting, appointed by the civil or by the ecclesiastical authority, all lectures and recitations are omitted.

## LIBRARY.

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Of the several departments into which the University Library is divided, the principal is the

College Library in Gore Hall. This Library is for the use of the whole University. Books may be taken out by all students of the University who have given bonds, and by all graduates of the University on giving bonds and paying an annual fee of \$5. The Library may be consulted by all persons, whether connected with the University or not. In Term time (excepting the days of Thanksgiving, Christmas, New Year, Fast Day, and Class Day), it is open on every week-day from 9 o'clock till 5, or till sunset when that is before 5. In the vacation it is open every week-day from 9 till 2 o'clock, but books are not given out till after the annual examination, which is commonly made within about a fortnight after Commencement.

The Libraries connected with the different Schools of the University are for the especial use of the Schools, and placed in the buildings where the Schools are kept.

The total number of books in the Libraries of the University is, in round numbers, as follows : —

College Library . . . . .	134,000
Library at the Botanical Garden . . . . .	4,000
Library in the Divinity College . . . . .	16,000
Law Library in Dane Hall . . . . .	15,000
Libraries in the Lawrence Scientific School . . . . .	3,000
Library at the Medical College . . . . .	2,000
Library at the Museum of Comparative Zoölogy . . . . .	5,000
Phillips Library at the Observatory . . . . .	3,000
Society Libraries of Students . . . . .	16,000
Total . . . . .	<u>198,000</u>

# SUMMARY.

## COLLEGE STUDENTS.

Senior Class . . . . .	131	
Junior Class . . . . .	162	
Sophomore Class . . . . .	166	
Freshman Class . . . . .	176	
	<hr/>	635

## DIVINITY STUDENTS.

Senior Class . . . . .	4	
Middle Class . . . . .	4	
Junior Class . . . . .	3	
Other Students . . . . .	9	
	<hr/>	20

## LAW STUDENTS.

Resident Bachelors of Laws . . . . .	5	
Second Year's Students . . . . .	37	
First Year's Students . . . . .	71	
	<hr/>	113

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1,050

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# EXAMINATION PAPERS.



*The following collection of University Examination Papers includes, —*

- (1) *The Papers for admission to Harvard College, June, 1872.*
- (2) *The Papers for admission to the Lawrence Scientific School, June, 1872.*
- (3) *The greater part of the Papers given in the College courses of instruction during the academic year 1871 – 72.*
- (4) *Papers selected from those given in the Divinity School.*
- (5) *The Examination Papers for the Degree of Bachelor of Laws, June, 1872.*
- (6) *Specimens of the Examination Papers on Medicine.*

*The College Examination Papers are arranged under the following heads :—*

*I. The Classics ; II. Modern Languages ; III. Philosophy ; IV. History, V. Mathematics ; VI. Physics (including Chemistry) ; VII. Natural History ; VIII. Music. The College Examinations are either Special or Final. Under Special Examinations are included all examinations held during the year by authority of the Faculty on portions of the year's work in the several courses of instruction. Final Examinations are those which are held in each study at the close of the year's work upon that study ; they cover the entire ground passed over in the study during the year. The Final Examinations are held at the end of the academic year in June, except in a few cases in which the course of study for the year is completed at the end of the first half-year in February.*

*The regular time allowed at an Examination is three hours ; but some of the Special Examinations are limited to two hours.*

*In the Classics, and in Mathematics, the collection of Papers here published is nearly complete ; in the other Departments, selections have been made, but in Natural History it has not been possible this year to present an adequate selection.*

*The Papers set for Honors in the Classics and in Mathematics will be found under those heads respectively ; the Examinations for Honors in the other Departments were oral, and were conducted by committees consisting in each case of the instructors of the Department.*

# EXAMINATION PAPERS.

## FOR ADMISSION TO HARVARD COLLEGE.

### GREEK GRAMMAR.

Candidates for admission to the Sophomore or higher class will omit Questions 1 and 2, and answer Question 6 instead. In all cases you will accentuate the Greek words.

1. Write down the smooth mutes, — the labial mutes. Perform crasis and elision on *μήτε ὁ ἀνὴρ*.

2. Form the acc. plur. of *τιμή* — voc. sing. of *πολλίτης* — entire sing. uncontracted and contracted of *δοῦτεον*, — sing. in all cases of *βασιλεὺς*, nom. plur. and gen. plur. of *σῶμα* and *πόλις*.

3. Decline *ἀληθής* in the sing., — compare *ἀγαθός* and *κωφός*. Decline *σύ* in all its numbers and *δοῦτε* in masc. sing.

4. Form the 2 pers. sing. aor. imper. middle of *βουλεύω*. Form the 1 pers. sing. of *λύω* in aor. opt. passive — of *φεύγω* in 2 aor. subj. active — of *λείπω* in 2 aor. indic. mid. Form the 2 pers. sing. of *τίθημι* in 2 aor. indic. middle. Inflect *εἰμι* (*I go*) in the pres. indic. Write out principal parts of *γινώσκω* and *ἐκδίδωμι*.

5. How is the article used in Homer? What is the difference between *καλὸς ὁ παῖς* and *ὁ καλὸς παῖς*? — *σοφώτερός ἐστιν ἢ ἐγώ*. Express this by changing *ἐγώ* into an oblique case. What constructions are used in final clauses? How do you express a general supposition in present and in past time? What is a dactyl, an iambus, a trochee, an anapaest?

6. *Sophomore Questions*. — Explain the use of *ὅτι* with the past tenses of the indicative. Explain the accusative in *μάχην νικᾶν*. Express "that man" in Greek prose. What constructions are allowed with verbals in *τέος, τέων*? What tenses and moods are used to express prohibition? Write out the scheme of the Iambic Trimeter Acatalectic both of Tragedy and of Comedy, naming the feet employed.

### GREEK COMPOSITION.

You are required to accentuate the Greek words.

1. Scythas asked, "Would you be willing, Episthenes, to die for this boy?" And he said, holding up his hands, "Strike, if the boy commands you to strike."

2. He feared that the men from the mountains would not make war with the Greeks.

N. B. The sentences below need correction: write out corrected forms for them with a right translation.

3. *Εἰ οὐδεις ἐρχομαι ὅτι ἀκούει ἐμε, οὐδεις σοφωτερος εἰσιν.*

4. *Ἀνίστησαν οἱ Ἕλληνες καὶ εἶπον τὸν παῖς εἰς τὴν πόλιν τοῦτο εἶναι.*

5. *For candidates for advanced standing.*

And Xenophon, on arriving, said to Seuthes, that the men were friendly, and would have sent mercenaries if he had asked it.

## LATIN GRAMMAR.

Translate the following extract :—

If you have forgotten the meaning of any word, indicate where it is made, and leave a blank for it.

Imitatus est homo Romanus veterem illum Socratem, qui cum omnium sapientissimus esset sanctissimeque vixisset, ita in iudicio capitis pro se ipse dixit, ut non supplex aut reus sed magister aut dominus videretur esse iudicum ; quin etiam cum ei scriptam orationem disertissimus orator Lysias attulisset, quam si ei videretur edisceret ut ea pro se in iudicio uteretur, non invitus legit et commodè scriptam esse dixit.

Decline *veterem, magister, iudicum, ei.*

Compare *invitus, sanctissime.*

Give the principal parts of *imitatus, vixisset, attulisset, edisceret, uteretur.*

Give all the participles and infinitives of *scriptam esse.*

What are the derivations of *Romanus, orationem, orator*, and the meaning of the derivative terminations in each ?

What is the construction (i. e. where are they made and why) of *omnium, se, videretur* (in each of the two cases), *edisceret, ea, scriptam esse, ei* (first one), *attulisset* ?

What are the principal rules for the change from direct discourse to indirect ?

## LATIN COMPOSITION.

I. During<sup>1</sup> these events<sup>2</sup>, horsemen<sup>3</sup> had been sent<sup>4</sup> to Alba, to<sup>5</sup> transport<sup>6</sup> the populace<sup>7</sup> to Rome. Then legions<sup>8</sup> were brought<sup>9</sup> for the-purpose<sup>2</sup> of destroying<sup>10</sup> the city.

II. When these<sup>6</sup> entered<sup>11</sup> the gates<sup>12</sup>, there was not that commotion<sup>13</sup> such<sup>14</sup> as is apt<sup>15</sup> to belong-to<sup>16</sup> captured<sup>17</sup> cities, when, on-the-capture<sup>18</sup> of the citadel<sup>19</sup> by force<sup>20</sup>, the rush<sup>21</sup> of armed<sup>22</sup> men<sup>2</sup> through the city confounds<sup>23</sup> all things ;

III. but a sad<sup>24</sup> silence<sup>25</sup> so enchained<sup>26</sup> the minds<sup>27</sup> of all, that forgetting<sup>28</sup> what to leave<sup>29</sup>, what to take<sup>30</sup> with them, they stood<sup>31</sup> on the thresholds<sup>32</sup>, or wandered<sup>33</sup> through their homes<sup>34</sup>.

<sup>1</sup>inter, <sup>2</sup>omit, <sup>3</sup>eques, <sup>4</sup>mitto, <sup>5</sup>express by a relative clause, <sup>6</sup>traduco, <sup>7</sup>multitudo, <sup>8</sup>legio, <sup>9</sup>duco, <sup>10</sup>diruo, <sup>11</sup>intro, <sup>12</sup>porta, <sup>13</sup>tumultus, <sup>14</sup>qualis, <sup>15</sup>soleo, <sup>16</sup>express by the case of "cities," <sup>17</sup>capio, <sup>18</sup>express by a passive verb, <sup>19</sup>arx, <sup>20</sup>vis, <sup>21</sup>cursum, <sup>22</sup>armo, <sup>23</sup>miscuo, <sup>24</sup>tristis, <sup>25</sup>silentium, <sup>26</sup>defigo, <sup>27</sup>animus, <sup>28</sup>obliviscor, <sup>29</sup>relinquo, <sup>30</sup>fero, <sup>31</sup>sto, <sup>32</sup>limen, <sup>33</sup>pervagor, <sup>34</sup>domus.

## ARITHMETIC.

Give the work in full, and arrange it in an orderly manner. Give each answer in its simplest form.

1. Find the greatest common divisor of 187 and 153. Also the least common multiple of the same two numbers.

2. Multiply 108 billionths by two thousand, and extract the cube root of the product.

3. Add  $\frac{3}{14}$  to  $\frac{8\frac{1}{2} - 2\frac{3}{4}}{9}$ .

4. A cellar is to be dug 30 feet long and 20 feet wide; at what depth will 50 cubic yards of earth have been removed?

5. What is the amount of \$340 at 8 per cent. for 1 y. 3 m., the interest being compounded semi-annually?

6. A man receives \$18 for six days' work of 8 hours each; what should he receive for 5 days' work of 9 hours each?

7. A cistern is 4 meters long, 24 decimeters wide, and 80 centimeters deep. How much water will it hold in cubic meters? In liters? In cubic centimeters? In grammes? In kilogrammes?

8. I have a rectangular lot of land, 64 rods long and 36 rods wide, and a square lot of the same area; how many more feet of fencing will be needed for the former lot than for the latter?

## ALGEBRA.

### COURSE I.

Write legibly and without crowding, give the whole work, and reduce the answers to their simplest forms.

1. A certain piece of work can be done by A and B working together in  $3\frac{1}{2}$  days, by B and C in  $4\frac{1}{2}$  days, and by C and A in 6 days. Required the time in which either can do it alone, and the time in which all can do it together.

2. Solve the equation  $\frac{2+x}{2-x} - \frac{1-x}{1+x} = 9$ .

3. Solve the equation  $x^2 - (a - b + c)x = (b - a)c$ .

4. Divide  $1 - \frac{ax + b^2}{a^2 + ax}$  by  $\frac{a^2 - (b - 2x)b + 2b^2}{a + x} - 2b$ ; and reduce the result to its lowest terms.

5. Divide  $9a^{2n} - a^{2n} - 27a^n + 27$  by  $a^n - 3$ .

6. Divide  $\sqrt[4]{\frac{a}{b}}$  by  $\sqrt{\frac{b}{a}}$ .

7. What is the reason that  $a^m a^n = a^{m+n}$ ?

## PLANE GEOMETRY.

N. B. — Write your name at the beginning of your exercise. Number your answers. Write as legibly as possible, and avoid crowding your work.

1. To how many right angles is the sum of all the interior angles of any polygon equal? State and prove; and then state and draw the figure for the theorem on which this one immediately depends.

2. What is the measure of the angle formed by two chords which cut each other between the centre and the circumference? By two chords which meet at the circumference? By two secants which meet without the circumference? Draw the figure for each case, and *prove the last one*.

3. To describe a circle through three given points.

4. Prove that two regular polygons of the same number of sides are similar.
5. The area of a trapezoid is half the product of its altitude by the sum of its parallel sides.
6. The perimeter of a regular hexagon is 18. Find
  - (a.) The area of the circumscribed circle ;
  - (b.) The area of the square inscribed in this circle.
7. Prove the proportion that exists between the parts of two intersecting chords.

### ANCIENT HISTORY AND GEOGRAPHY.

N. B. Take 1. and any four of the others.

1. "Sit Scipio ille clarus, cujus consilio atque virtute Hannibal in Africam redire atque Italia decedere coactus est ; ornetur alter eximia laude Africanus, qui duas urbes huic imperio infestissimas, Carthaginem Numantiamque, delevit ; habeatur vir egregius Paulus ille, cujus currum rex potentissimus quondam et nobilissimus Perses honestavit ; sit aeterna gloria Marius, qui bis Italiam obsidione et metu servitutis liberavit ; anteponat omnibus Pompeius, cujus res gestae atque virtutes iisdem quibus solis cursus regionibus ac terminis continentur.

Explain this passage from Cicero by brief notes, without writing a translation of it.

2. From what places, etc. did the Bosporani, the Cyziceni, the Cretenses, the Rhodii, mentioned by Cicero, respectively derive their names ? Where were those places ? Where were Brundisium, Caieta, Cilicia ?

3. Give the divisions of the Peloponnesus, with their relative position, and name a place in each. Connect historically Mantinea with Leuctra in Boeotia.

4. What and where were the chief settlements made outside of Greece by Greeks ? Describe the great Sicilian expedition.

5. Point out and describe the main causes of the growth and decline of the Athenian power.

6. What were the relations at different times between the Persian kings and the Greeks ?

### MODERN AND PHYSICAL GEOGRAPHY.

1. Where is Manilla ? Through what waters and across what countries would you pass in travelling from Manilla to New York, (a) entirely by water, (b) partly by water and partly by land ?

2. Explain what is meant by *latitude* and *longitude*. What is the longitude of the point in the northern hemisphere directly opposite Washington ? (Assume longitude of Washington 77° W.) What is the latitude and longitude of the point in the southern hemisphere directly opposite Cambridge ? (The latitude of Cambridge is 42° 23' N., the longitude, 71° 7' W.)

3. Mention the different bodies of water surrounding the British Islands, and the rivers flowing into each.

4. Give as precisely as you can the position of the following mountains, and state, where possible, to what range each belongs : — Washing-

ton ; St. Elias ; Hecla ; Elburz ; Pike's Peak ; Dwalagiri ; Chimborazo ; Shasta ; Orizaba.

5. Enumerate the States and Territories through or by which the Mississippi, Missouri, and Ohio rivers flow.

6. State the principal conditions which determine the *head of navigation* on a river. Name the town or city at the head of navigation on two rivers in the United States and on one in Europe.

7. State what you know about the Gulf Stream.

## ALGEBRA.

### COURSE II.

(Two Hours.)

1. Reduce the following expression to its simplest form : —

$$a^2 - [2ab - \{bc - (a + b - c)(a - (b - c))\} + 3ab] - (b + c)^2.$$

2. State and prove the rule for the *sign* of a power and of a root. How do *imaginary* quantities arise ?

3. What is denoted by  $a^0$  ? by  $a^{-3}$  ? by  $a^{\frac{3}{2}}$  ?

4. Reduce  $1 - \frac{\frac{x}{x-1} - 1}{1 - \frac{x}{x+1}}$  to its simplest form.

5. Solve the equation  $ax^2 + 2hx + b = 0$  ; and prove that the product of the roots  $= -\frac{b}{a}$ .

6. There are seven numbers in arithmetical progression such that the sum of the 1st and 5th is 16, and the product of the 4th and 7th is 160. Find the numbers. (This question admits two solutions. Both are required.)

7. Multiply  $1 - 5\sqrt{7}$  by  $-2 - 3\sqrt{7}$ .

Divide  $\frac{\sqrt{a}}{d\sqrt{c}} \sqrt{\frac{b}{a^2}}$  by  $\frac{a\sqrt{d^5}}{cd\sqrt{c}}$ .

8. Find the sixth term of  $\left(\frac{2a}{b^2} - \frac{1}{2}b\sqrt{a}\right)^8$ .

9. Find the greatest common divisor and the least common multiple of  $6x^3 - 6x^2 - 72x$  and  $4x^4 - 16x^3 - 84x^2$ .

## ALGEBRA.

### FOR ADVANCED STANDING.

Write legibly and without crowding, give the whole work, and reduce the answers to their simplest forms.

1. Divide  $1 - \frac{ax + b^2}{a^2 + ax}$  by  $\frac{a^2 - (b - 2x)b + 2b^2}{a + x} - 2b$ .

2. A and B set out at the same time to walk  $a$  miles ; A walks  $b$  miles an hour faster than B, and arrives  $c$  hours earlier. Find the rate per hour of each.

What do the answers become when  $a = 6$ ,  $b = 1$ ,  $c = 1$  ?

## 3. Solve the equations

$$x^2 + y^2 = 106, x - y + \sqrt{x - y} = 6.$$

## 4. To find the sum of an infinite decreasing geometric progression.

*Example.* Find the sum of the infinite geometric progression of which the first three terms are  $\frac{2}{3}$ ,  $\frac{1}{3}$ ,  $\frac{1}{9}$ .

5. Find the 6th term of  $\left(\frac{1}{3}\sqrt[3]{b^2} - \frac{2a^3}{\sqrt{b}}\right)^8$ .

## 6. Extract the cube root of

$$x^6 - 15x^5y + 131x^4y^2 - 185x^3y^3 + 262x^2y^4 - 60x^1y^5 + 8y^6.$$

## 7. Solve the equations

$$ax + by + c = 0, a'x + b'y + c' = 0,$$

by elimination by substitution; and show that if one of the unknown quantities is *indeterminate*, the other is so also.

## SOLID GEOMETRY.

## COURSE II. AND ADVANCED STANDING.

N. B. — Write your name at the beginning of your exercise. Number your answers. Write as legibly as possible, and avoid crowding your work.

1. If two planes are perpendicular to each other, the line drawn in one plane, perpendicular to the common intersection, is also perpendicular to the second plane.

2. The sum of all the plane angles which form a solid angle is always less than four right angles.

3. The solidity of a triangular prism is the product of its base by its altitude. Prove; and then show briefly how this theorem is made use of in finding the volume of a volume.

4. Define similar polyedron  
Prove that similar prisms,  
of their altitudes.

5. Prove that if two spheres are equal spheres, are equilateral equiangular with respect to each other.

6. The length of a perfect diameter of each end is 12 feet

- (a.) Its convex surface;
- (b.) The surface of the great circle;
- (c.) The volume of this sphere.

## LOGARITHMS

## COURSE II. A

1. Obtain a formula by which the cosine may be found; also for the sine of an angle, when the sine of another angle is given.

2. Obtain, by the formulas, the values of the trigonometric functions of  $45^\circ$ .

3. Prove that, in any triangle, the sines of any two angles are proportional to the opposite sides.
4. Solve the triangle in which two sides are 32.64 and 25.14, and the angle opposite the second side is  $32^{\circ} 48'$ .  
Are there two solutions to this problem? Why?
5. Find, by logarithms, the value of

$$\sqrt[4]{\frac{32.85 \times (.0146)^2}{(23.9)^3}}$$

6. State the process and give the formulas by which, when two sides and the included angle of a triangle are known, the remaining parts can be obtained.

## PHYSICS.

## COURSE II. AND ADVANCED STANDING.

1. How does the weight of a body differ from the mass? How are forces represented? If it be stated that two forces, of 5 lbs. and 10 lbs., act upon a body, what more is wanting to enable us to determine the result?
2. Prove the proposition, "If two forces, acting at any angles on the arm of any lever, balance each other, they are inversely as the perpendiculars drawn from the fulcrum to the directions in which the forces act."
3. The direction of two forces, P and Q, which act on a bent lever and have  
 with the arms of the lever, which  
 is ratio of Q to P.  
 angle. One half of a given triangle to the base; find the centre of  
 body of uniform density floats on  
 density :: the specific gravity of the  
 thermometer, which is graduated  
 Centigrade scale, be forty, find



# EXAMINATION PAPERS

## FOR ADMISSION TO THE LAWRENCE SCIENTIFIC SCHOOL.

### ARITHMETIC.

1. Define an abstract number, a prime number, a ratio, a decimal fraction, per cent.
2. Write in figures, Twenty million three hundred six and thirty-two ten thousandths; also, Eighty-three thousand twenty-one billionths. Write in words 3.200006; also .00000 $\frac{1}{2}$ .
3. Find the greatest common divisor and least common multiple of 2550 and 3944.
4. Simplify  $\frac{2\frac{4}{11}}{2\frac{2}{3}} \div \frac{2\frac{7}{11}}{8\frac{7}{10}}$ ; also,  $\frac{1\frac{2}{3} + 2\frac{5}{6}}{5\frac{1}{2} + 4\frac{1}{6}}$ .
5. Reduce .003125 to a common fraction. Divide .003125 by 31 $\frac{1}{2}$ .
6. Reduce 9° 0' 2".4 to minutes and decimal of a minute. Reduce 0°.875 to minutes and seconds.
7. How many acres and square rods in a field 5.05 chains by 12.34 chains?
8. When gold is quoted at 113 $\frac{5}{8}$ , what is a dollar bill worth? 40 per cent of 30 is what per cent of 25?
9. Bought a 1000 dollar 10 per cent R. R. Bond at 87 $\frac{1}{2}$  and 3 months' accrued interest: what rate of interest do I get on the investment?
10. Extract the square root of .9; also of 272 $\frac{3}{4}$ . Find the number of square inches in the surface of a cube containing 8,365,427 cubic inches.

### ALGEBRA.

1. Define a term, similar terms, homogeneous terms, a root, an equation, an imaginary quantity.
2. Simplify  $a - [5b - \{a - (3c - 3b) + 2c - (a - 2b - c)\}]$ .
3. Resolve  $a^6 - b^6$  into four factors. Resolve  $x^{2m} - 4x^m + 4$  into its factors.
4. Reduce to lowest terms,  $\frac{ax^m - bx^{m+1}}{a^2bx - b^2x^3}$ .
5. Solve the equation,  $\frac{7x+9}{4} - \left(x - \frac{2x-1}{9}\right) = 7$ .
6. What is the value of  $\frac{0}{0}$ ?

Simplify  $\frac{1 + \sqrt{-1}}{1 - \sqrt{-1}}$ . Simplify  $\sqrt[3]{\frac{a}{5}} \sqrt{\frac{a}{5}}$ .

7. Given  $\frac{\sqrt{4x+2}}{4+\sqrt{x}} = \frac{4-\sqrt{x}}{\sqrt{x}}$ , to find the values of  $x$ .

8. Deduce the formula for the sum of an arithmetical progression. Insert three geometrical means between  $\frac{1}{2}$  and 128. Reduce the circulating decimal .36 to a common fraction.

9. Expand  $(2x - 3y)^6$  by the Binomial Formula.

10. Prove that  $\log. \left(\frac{m}{n}\right) = \log. m - \log. n$ .

Find, by logarithms, the value of  $\frac{23.342 \times \sqrt{.015}}{\sqrt{\frac{.583}{28.733}}}$

### GEOMETRY.

1. Define an angle, a trapezoid, a plane, a sphere, a prism.
2. Prove that, if any side of a triangle be produced, the exterior angle thus formed is equal to the sum of the two opposite interior angles.
3. Prove that, if two opposite sides of a quadrilateral are equal and parallel, the figure is a parallelogram.
4. What is the measure of an angle that has its vertex within the circumference of a circle? Prove your answer. Form a proportion with the parts of the chords made by producing the sides of such an angle.
5. Deduce the ratio of the diagonal of a square to its side.
6. The side of a given square is  $m$  feet; what is the side of a square which is  $6\frac{1}{4}$  times as large as the given square?
7. Prove that the intersections of two parallel planes by a third plane are parallel lines.
8. Prove that a triangular pyramid is a third part of a triangular prism of the same base and altitude.
9. Prove that the angles of a spherical triangle are respectively supplements of the sides of its polar triangle.
10.  $R$  is the radius of a sphere,  $C$  the circumference and  $A$  the area of a great circle,  $S$  the surface and  $V$  the volume of the sphere; deduce expressions for  $C$ ,  $A$ ,  $S$ , and  $V$  in terms of  $\pi$  and  $R$ .

### TRIGONOMETRY.

1. Find the sine of  $1^\circ 21' 33''$ , knowing that the sine of  $7' 15''$  is 0.00211.
2. Deduce the formula for the cosine of the difference of two angles.
3. Prove the formulas,  $\tan. 2A = \frac{2 \tan. A}{1 - \tan.^2 A}$ , and  $\sin. A + \sin. B = 2 \sin. \frac{1}{2}(A+B) \cos. \frac{1}{2}(A-B)$ .

4. Deduce all the trigonometric functions of  $30^\circ$  and  $135^\circ$ .
5. From the formula  $a^2 = b^2 + c^2 - 2bc \cos. A$ , deduce  $\cos. \frac{1}{2} A = \sqrt{\frac{s(s-a)}{bc}}$  when  $s = \frac{1}{2} (a + b + c)$ .
6. In a right triangle, given  $a = 56.298$ ,  $A = 54^\circ 27' 39''$ , to find  $b$ , and  $B$ .
7. In an oblique triangle, given  $a = 3754$ ,  $b = 3277.628$ ,  $C = 57^\circ 53' 17''$ , to find  $A$ ,  $B$ , and  $c$ .
8. Consider each of the following triangles, and determine whether it is possible or impossible; if possible, whether it has one, two, or more solutions. Give, in full, the reasons for your conclusions.
  - (1)  $A = 81^\circ 59' 32''$ ;  $B = 44^\circ 33' 12''$ ;  $C = 53^\circ 27' 16''$ .
  - (2)  $A = 38^\circ 36'$ ;  $B = 56^\circ 27'$ ;  $C = 84^\circ 12'$ .
  - (3)  $a = 121$ ;  $b = 115.36$ ;  $B = 94^\circ 15' 6''$ .
  - (4)  $A = 30^\circ$ ;  $b = 175.2$ ;  $a = 87.6$ .
  - (5)  $A = 30^\circ$ ;  $b = 175.2$ ;  $a = 150$ .
  - (6)  $a = 34.27$ ;  $b = 27.34$ ;  $c = 62.18$ .

# COLLEGE EXAMINATIONS.

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## I. THE CLASSICS.

### GREEK.

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#### FRESHMEN (see page 55).

#### XENOPHON'S MEMORABILIA.

(*Special Examination, December, 1871.*)

##### SECTION A.

- (α) In what voice, mood, tense, and from what presents are :  
καθεστῶτων (I. ii. 9). ὠρεχθήτην (I. ii. 16).  
καταναλώσαντες (I. ii. 22). δέξωις (II. i. 28).
- (β) Translate I. i. 9.
- (γ) Explain the construction of ἔξου (I. ii. 7). What is to be said of the combination of negatives which precedes it?
- (δ) Explain fully the conditional sentence at the end of I. ii. 28.
- (ε) State the point of resemblance and the point of difference between the optative construction in ἐπιλάβοιτο (I. ii. 31) and that in ἐξείη (I. ii. 33).
- (ς) Translate I. ii. 36, observing a careful arrangement of clauses.
- (η) What do τυχεῖν and εἰδέναι (I. ii. 41) respectively represent? What remark on the negative before τυχεῖν?
- (θ) What is the construction of ἀμελῇ (I. i. 55, end)?
- (ι) Explain fully the mood of δέου (I. ii. 59).
- (κ) Translate very literally II. i. 23.

##### SECTION B.

- (α) In what voice, mood, tense, and from what presents are :  
κεκληῆσθαι (I. i. 16). κεκτημένος (I. ii. 1).  
ὀπίσχετο (I. ii. 3). ἀπαλλαγέντε (I. ii. 24).
- (β) Translate I. i. 11.
- (γ) How is the word εἰ translated (1st) in i. 5 ; (2d) in i. 8 ; and (3d) in i. 13?

- (δ) Explain the sort of supposition illustrated and the time denoted by ἐπιμελῶνται (ii. 2) and by ὥσι (ii. 20).  
 (ε) What mood of direct discourse is represented by γενέσθαι ἄν (ii. 15)? What by ἐλίσθαι ἄν (ii. 16)?  
 (ς) Translate ii. 37.  
 (η) Explain the construction of ἔχοις ἄν (ii. 41).  
 (θ) Explain the mood of προσέλθοιεν (ii. 47). Point out its apodosis.  
 (ι) What is the explanation of the optative ἐπαινοίη (ii. 58, end)?  
 (κ) Translate ii. 59.

## GREEK COMPOSITION.

(Special Examination, January, 1872.)

## SECTION A.

When Nikias had <sup>1</sup>bathed and the <sup>2</sup>servants had come, after <sup>3</sup>conversing with them and <sup>4</sup>enjoining whatever he wished, he commanded his servants to go away, but us to come to him.

Then arrived the <sup>5</sup>officer of the king. "Nikias," said he, "if I did not know you to be far better than the other Greeks who ever have arrived here, I should have to <sup>6</sup>try to help you. But nothing will prevent you from being happy before you chance to die; and who that is brave would be <sup>7</sup>terrified by the <sup>8</sup>future?"

<sup>1</sup> λουόμαι	<sup>2</sup> οικέτης	<sup>3</sup> διαλέγομαι	<sup>4</sup> ἐσπιστέλλω
<sup>5</sup> ὑπηρέτης	<sup>6</sup> ἐπιμελοῦμαι	<sup>7</sup> ἐκπλήσσω	<sup>8</sup> τὰ μέλλοντα

## SECTION B.

I know that Nikias' brother will stay until he finds <sup>1</sup>out whatever he wishes; and I am afraid that he will find-out <sup>2</sup>without-our-knowing it.

I used to think that Nikias was a most <sup>3</sup>terrible fellow to <sup>4</sup>vex his friends; for, if a man once went-<sup>5</sup>wrong, Nikias never <sup>6</sup>stopped talking about it. But now I think that Nikias' brother was far worse than he.

<sup>1</sup> ἐξευρίσκω	<sup>2</sup> λανθάνω	<sup>3</sup> δεινός
<sup>4</sup> λυπῶ	<sup>5</sup> ἀμαρτάνω	<sup>6</sup> παύομαι

## PLATO'S APOLOGY.

(Special Examination, February, 1872.)

Translate:

1. ὦ Καλλία, ἦν δ' ἐγώ, εἰ μὲν σου τῷ νύκτωρ ἢ μόσχῳ ἐγενέσθην, εἶχομεν ἄν αὐτοῖν ἐπιστάτην λαβεῖν καὶ μισθώσασθαι, ὅς ἐμελλεν αὐτῷ καλῶς τε κάγαθῶς ποιῆσειν τὴν προσήκουσαν ἀρετὴν· ἦν δ' ἄν οὗτος ἡ τῶν ἱππικῶν τις ἡ τῶν γεωργικῶν· νῦν δ' ἐπεὶ δὴ ἀνθρώπῳ ἐστὶν, τίνα αὐτοῖν ἐν νῦν ἔχεις ἐπιστάτην λαβεῖν; τίς τῆς τοιαύτης ἀρετῆς, τῆς ἀνθρωπίνης τε καὶ πολιτικῆς, ἐπιστήμων ἐστίν; οἶμαι γάρ σε ἐσκέφθαι διὰ τὴν τῶν νύκτων κτῆσιν· ἔστι τις, ἔφη ἐγώ, ἡ οὐ; Πάνυ γε, ἦ δ' ὅς. Τίς, ἦν δ' ἐγώ, καὶ ποδαπός, καὶ πόσου διδάσκει; Εὐθνος, ἔφη, ὦ Σώκρατες, Πάριος, πέντε μῶν.

Point out apodoses, expressed with and without *αν*, which refer to past time and have their conditions denied. *ἀρετῆς* and *μῶν*, constructions? Give the names and values of the Attic coins.

2. *Καὶ ἐπειδὴν τις αὐτοὺς ἐρωτᾷ, ὅ τι ποιοῦν καὶ ὅ τι διδάσκων, ἔχουσι μὲν οὐδὲν εἰπεῖν, ἀλλ' ἀγνοοῦσιν, ἵνα δὲ μὴ δοκῶσιν ἀπορεῖν, τὰ κατὰ πάντων τῶν φιλοσοφούντων πρόχειρα ταῦτα λέγουσιν, ὅτι τὰ μετέωρα καὶ τὰ ὑπὸ γῆς, καὶ θεοὺς μὴ νομίζειν, καὶ τὸν ἥττω λόγον κρεῖττω ποιεῖν.*

Explain the constructions of the Temporal and Final Clauses of the passage.

3. *Ἄλλ', ὦ Μέλητε, οὐκ ἔστιν ὅπως σὺ ταῦτα οὐχὶ ἀποπειρώμενος ἡμῶν ἐγράψω [τὴν γραφὴν ταύτην] ἢ ἀπορῶν ὅ τι ἐγκαλοῖς ἐμοὶ ἀληθὲς ἀδίκημα. ὅπως δὲ σὺ τινα πείθοις ἂν καὶ σμικρὸν νοῦν ἔχοντα ἀνθρώπων, ὥς οὐ τοῦ αὐτοῦ ἔστι καὶ δαιμόνια καὶ θεῖα ἡγείσθαι, καὶ αὐτὸ τοῦ αὐτοῦ μήτε δαίμονας μήτε θεοὺς μήτε ἥρωας, οὐδεμῖα μηχανή ἔστιν.*

The constructions of the Oratio Obliqua? illustrating by *ἐγκαλοῖς* and *ὥς τοῦ αὐτοῦ ἔστι*.

4. *Καὶ γὰρ τοῦτο αὐτὸ τὸ τοῦ Ὀμήρου, οὐδ' ἐγὼ ἀπὸ δρυὸς οὐδ' ἀπὸ πέτρης πέφυκα, ἀλλ' ἐξ ἀνθρώπων, ὥστε καὶ οἰκεῖοί μοι εἰσι καὶ υἱεῖς γε, ὦ ἄνδρες Ἀθηναῖοι, τρεῖς, εἰς μὲν μενιάκιον ἦδη, δύο δὲ παῖδια.*

Why this mood after *ὥστε*?

5. *Οὔτε γὰρ ἐν δίκῃ οὐτ' ἐν πολέμῳ οὐτ' ἐμὲ οὐτ' ἄλλον οὐδένα δεῖ τοῦτο μηχανᾶσθαι, ὅπως ἀποφεύξεται πᾶν ποῖων θάνατον. καὶ γὰρ ἐν ταῖς μάχαις πολλάκις δῆλον γίγνεται ὅτι τό γε ἀποθανεῖν ῥᾶον ἂν τις ἐκφύγοι καὶ ὅπλα ἀφείλῃ καὶ ἐφ' ἱκετεῖαν τραπόμενος τῶν διωκόντων. καὶ ἄλλαι μηχαναὶ πολλαὶ εἰσιν ἐν ἐκάστοις τοῖς κινδύνοις, ὥστε διαφεύγειν θάνατον, ἐάν τις τολμᾷ πᾶν ποιεῖν καὶ λέγειν. ἀλλὰ μὴ οὐ τοῦτ' ἦ χαλεπὸν, ὦ ἄνδρες, θάνατον ἐκφυγεῖν, ἀλλὰ πολὺ χαλεπώτερον πονηρίαν. θάπτον γὰρ θανάτου θεῖ.*

Compare the Object Clauses *ὅπως ἀποφεύξεται* and *τοῦτ' ἦ χαλεπὸν*. From what and where are *ἀφείλῃ*, *τραπόμενος*, *τολμᾷ*?

6. The number of the Court before which Socrates was tried? How many voted in his favor? How was the penalty proposed?

## GREEK COMPOSITION.

(*Special Examination, May, 1872.*)

### SECTION A.

When the State stands together out of good-will and the same things benefit all the sharers in war, men are willing to bear calamities; but when anybody, like this man, grows strong by greediness, the first slip breaks up everything. I could point out to any person, in case he wants to learn, the sort of preparation likely to free us from present circumstances; and I think that it is not he who hinders others from speaking, but he who shows what the choice of the advantageous will be, who is your friend.

## SECTION B.

If any person was not willing to sail directly, but yet wished to share in the colony, he was allowed to stay by paying fifty drachmae. On this, the desire to stay possessed everybody, and no man would have known that the archons had announced a colony but for their statement that the revenues were becoming much greater.

## PLATO'S APOLOGY, HERODOTUS, AND ODYSSEY.

(Final Examination, June, 1872.)

## PLATO'S APOLOGY.

Translate Ch. V. to *αὐτοσχεδιάζομεν*.

Translate Ch. XVII. to *τάξις*.

Translate Ch. XXIII. B. *ταῦτα γὰρ* to the end.

1. (18 E.) Who are the two kinds of accusers?
  2. (24 A.) *ὥστε θαυμάζοιμι* *ἀν*. How and why does this differ from the regular construction after *ὥστε*?
  3. (29 D.) If *αλοχύνει* were an imperfect tense, how would the construction of *ὅπως ἔσται* be affected?
  4. (32 B.) *ἡναντιώθη*. What other constructions might follow this verb of hindrance?
  5. (36 D.) *ὅτι ἂν πρόποι* (39 C.) *οἱ ἀπεκτόνατε*. Compare the two Relative Constructions.
- B sections omit one of the above questions.

## HERODOTUS (of Goodwin's Greek Reader).

References are to lines of paragraphs.

Translate Page 134, § 36, to *ἐπέφακτο*.

Translate Page 135, § 38, to *δραχμάς*.

Translate Page 177, § 57, first five lines (for A sections).

From what and where are 36. 5 *συνεστηκυῖαι*; 36. 11 *ἀπέντας*; 36, last line, *ἔσωθήναι*; 38. 4 *λάξεσθαι*; 38. 6 *ἀνέγνωσε* and give its meaning here; 38, last line, *δέκεσθαι*.

B sections omit one of the above.

Write the Attic of the Ionic forms in 39.

## ODYSSEY.

Translate Book VI. vss. 93–98 inclusive.

Translate Book VI. vss. 204–211 inclusive.

Translate Book VII. vss. 67–74 inclusive (for A sections).

Give the derivations of the following words: 76. *μενοεικέ'*; 77. *ὄψα*, and give its various meanings; 87. *ὑπεκπρορρεί*, and point out the force of its several prepositions; 124. *πίσεια*; 198. *εὐπλοκάμοισι*; 269. *πελοματα*.

B sections omit two.

Explain the constructions of the following: 37. *ἄγρω*; 80. *χυτλώσαιτο*; 189. *ἐθέλγω*; 221. *ἂν λοέσσομαι*; 275. *ἐλπησι*; Bk. VII. 72. *στείχησ'*.

B sections omit two.

## ARISTOPHANES AND XENOPHON.

(Final Examination, June, 1872.)

## BIRDS OF ARISTOPHANES.

## SECTION A. Translate passages 1, 2, and 4.

ΕΠΟΨ.

1. Ποίαν τιν' οὖν ἤδιστ' ἂν οἰκοῖτ' ἂν πόλιν;

ΕΤΕΛΠΙΔΗΣ.

Ὅπου τὰ μέγιστα πράγματ' εἴη τοιαδί·  
 Ἐπὶ τὴν θύραν μου πρῶ τις ἐλθὼν τῶν φίλων  
 Λέγοι ταδί· πρὸς τοῦ Δίδος τοῦλυμπίου,  
 Ὅπως παρέσει μοι καὶ σὺ καὶ τὰ παῖδια  
 Λουσάμενα πρῶ· μέλλω γὰρ ἐστιᾶν γάμους·  
 Καὶ μηδαμῶς ἄλλως ποιήσης· εἰ δὲ μή,  
 Μή μοι τότε γ' ἐλθῆς, ὅταν ἐγὼ πρᾶττω κακῶς.

ΠΕΙΣΘΕΤΑΙΡΟΣ.

2. Ἀτὰρ τὸ δεῖνα δεῦρ' ἐπανάκρουσαι πάλιν.  
 Φέρ' ἴδω, φράσον νῦν, πῶς ἐγὼ τε χούτοσι  
 Ζυνεσόμεθ' ὑμῶν πετομένους οὐ πετομένῳ;

ΕΠΟΨ.

Καλῶς.

ΠΕΙΣΘΕΤΑΙΡΟΣ.

Ὅρα νυν ὡς ἐν Αἰσώπου λόγοις  
 Ἔστιν λεγόμενον δὴ τι, τὴν ἀλώπεχ', ὡς  
 Φλαύρως ἐκoinώνησεν ἀετῷ ποτέ.

ΕΠΟΨ.

Μηδὲν φοβηθῆς· ἔστι γάρ τι βίξιον,  
 Ὅ διατραγόντ' ἐσεσθον ἐπτερωμένῳ.

ΧΟΡΟΣ.

8. Εἴτα πρὸς τούτοιςιν ὥσπερ ἐν ἱεροῖς οἰκῆσετε,  
 Τὰς γὰρ ὑμῶν οἰκίας ἐρέψομεν πρὸς αἰτῶν·  
 Κἂν λαχόντες ἀρχίδιον εἴθ' ἀρπάσαι βούλησθῃ τι,  
 Ὅξιν ἱερακίσκον ἐς τὰς χεῖρας ὑμῶν δώσομεν.  
 Ἦν δέ που δειπνήτε, πρηγορώνας ὑμῖν πέμψομεν.  
 Ἦν δὲ μὴ κρίνητε, χαλκεύεσθε μηνίσκους φορεῖν  
 Ὡσπερ ἀνδριάντες· ὡς ὑμῶν δεῖ ἂν μὴ μῆν' ἔχῃ,  
 Ὅταν ἔχῃτε χλανίδα λευκὴν, τότε μάλισθ' οὕτω δίκην  
 Δώσεθ' ἡμῖν.

ΠΡΟΜΗΘΕΥΣ.

4. Ἀπόλωλεν ὁ Ζεὺς.

ΠΕΙΣΘΕΤΑΙΡΟΣ.

Πηνὶκ' ἀτ' ἀπώλετο;

ΠΡΟΜΗΘΕΥΣ.

Ἐξ οὐπερ ὑμεῖς ὥκισατε τὸν αἶρα.  
 Θυεὶ γὰρ οὐδεὶς οὐδὲν ἀνθρώπων ἔτι  
 Θεοῖσιν, οὐδὲ κνῖσα μηρῶν ἀπο  
 Ἀνῆλθεν ὡς ἡμᾶς ἀπ' ἐκείνου τοῦ χρόνου,



Ἄλλ' ὥσπερ ἐλθεῖν Θεσμοφορίους νηστεύομεν  
 Ἄνευ θυγλῶν · οἱ δὲ βάρβαροι θεοὶ  
 Πεινῶντες ὥσπερ Ἴλλυριοὶ κεκριγότες  
 Ἐπιστρατεύσειν φάσ' ἄνωθεν τῷ Δαί,  
 Εἰ μὴ παρέξει τὰμπόρι' ἀνεωγμένα,  
 Ἴν' εἰσάγοιτο σπλάγχνα κατατετμημένα.

In passage 1 supply the omission after *εἰ δὲ μή*, and explain the appearance of *εἰ* here.

In passage 2 divide metrically lines 2 and 3, marking the quantity of each syllable.

In passage 3 comment briefly on *πρὸς ἀετόν*, *κρίνητε*, and *μήν'*.

In passage 4 what is omitted after *ὥσπερ*? Why is *εἰσάγοιτο* optative?

SECTION B. Translate the following passages:—

- XOP. Φεισόμεσθα γὰρ τί τῶνδε μᾶλλον ἡμεῖς ἢ λύκων;  
 ΕΠ. Ἢ τίνας τισαίμεθ' ἄλλους τῶνδ' ἂν ἐχθροὺς ἔτι;  
 Εἰ δὲ τὴν φύσιν μὲν ἐχθροὶ, τὸν δὲ νοῦν εἰσιν φίλοι,  
 Καὶ διδάζοντές τι δεῦρ' ἤκουσιν ὑμᾶς χρήσιμον;  
 2. ΕΠ. Φέρ' ἴδω, τί δ' ἡμῖν τοῦνομι' ἔσται τῇ πόλει;  
 ΠΕΙΣΘ. Βούλεσθε τὸ μέγα τοῦτο τοῦκ Λακεδαιμόνος  
 Σπάρτην ὄνομα καλῶμεν αὐτήν;  
 ΕΤΕΛ. Ἡράκλειος·  
 Σπάρτην γὰρ ἂν θείμην ἐγὼ τῇμῃ πόλει;  
 3. ΠΕΙΣΘ. Τί; βούλει δῆτα τὸν μισθὸν λαβῶν  
 Μὴ πράγματ' ἔχειν, ἀλλ' ἀπιέναι;  
 ΕΠΙΣΚ. Νὴ τοὺς θεοὺς.  
 Ἐκκλησιάσαι δ' οὖν ἐδεδμήν οἶκοι μένων.  
 Ἔστω γὰρ ἃ δι' ἐμοῦ πέπρακται Φαρνάκη.  
 4. ΠΡΟΜ. Μισῶ δ' ἅπαντας τοὺς θεοὺς, ὡς οἶσθα σύ.  
 ΠΕΙΣΘ. Νὴ τὸν Δί' αἰεὶ δῆτα θεομίσης ἔφυς.  
 ΠΡΟΜ. Τίμων καθαρός. Ἄλλ' ὡς ἂν ἀποτρέχω πάλα,  
 Φέρε τὸ σκιάδειον, ἵνα με κἂν ὁ Ζεὺς ἴδῃ  
 Ἄνωθεν, ἀκολουθεῖν δοκῶ κανηφόρῳ.

In passage 1 what is the construction of *τῶνδε* (line 1) and of *εἰσιν*?

In passage 2 what is the construction of *καλῶμεν* and of *θείμην*?

In passage 3 divide metrically the last two lines, marking the quantity of each syllable.

In passage 4 explain the subjunctives.

#### XENOPHON'S MEMORABILIA.

SECTION A. (α) Translate I. i. §§ 14 and 15.

(β) Translate I. ii. § 34. Explain fully the construction of *λάθω* and of *παρανομήσας*.

(γ) In II. i. 30 to what construction might *πρὶν ἐπιθυμῆσαι* change if the leading sentence were made negative?

(δ) What were the views of Socrates concerning physical science? Give a very brief description of the Socratic method of discussion.

SECTION B. (α) Translate I. i. §§ 12 and 13.

(β) Explain in full the two conditions of I. ii. § 28.

(γ) Translate I. ii. § 53.

(δ) Instead of *οἶδα αὐτὸν λέγοντα* in the above passage, what other Greek would do as well?

## SOPHOMORES.

## Course I. (see page 56.)

## AJAX OF SOPHOCLES.

(Special Examination, December, 1871.)

- Translate 1. 'Ο δ' εἶπε πρὸς με βαί', αἶ δ' ὑμνούμενα ·  
 Γύναι, γυναιξὶ κόσμον ἢ σιγῇ φέρει.  
 Κἀγὼ μαθοῦσ' ἔλῃξ', ὁ δ' ἐσσύθη μόνος.  
 Καὶ τὰς ἐκεῖ μὲν οὐκ ἔχω λέγειν πάθας ·  
 Ἔσω δ' ἐσῆλθε συνδέτους ἄγων ὁμοῦ  
 Ταύρους, κύνας βοτῆρας, εὐερόν τ' ἄγραν.  
 Καὶ τοὺς μὲν ἠϋχένιζε, τοὺς δ' ἄνω τρέπων  
 Ἔσφαζε κἀβράχιζε, τοὺς δὲ δεσμίους  
 Ἠκίλζεθ' ὥστε φῶτας ἐν ποίμναις πίτνων.  
 Τέλος δ' ὑπᾶξας διὰ θυρῶν σκιὰ τιμὴν  
 Λόγους ἀνέσπα τοὺς μὲν Ἀτρεϊδῶν κάτα,  
 Τοὺς δ' ἀμφ' Ὀδυσσεῖ, ξυγνιθεὶς γέλων πολὺν,  
 Ὅσῃν κατ' αὐτῶν ὕβριν ἐκτίσαιτ' ἰὼν ·  
 Κἀπειτ' ἐπᾶξας αἰθὴς ἐς δόμους πάλιν  
 Ἐμφρων μόλις πως ξὺν χρόνῳ καθίσταται,  
 Καὶ πλήρες ἄτης ὥς διασπτεύει στέγος,  
 Παίσας κἀρα θῶύξεν · ἐν δ' ἐρείπιοις  
 Νεκρῶν ἐρειφθεὶς ἔζετ' ἀρνείου φόνου,  
 Κόμην ἀπριζὶ δρυξὶ συλλαβῶν χερσὶ.  
 Καὶ τὸν μὲν ἦστο πλείστον ἀφθοργος χρόνον ·  
 Ἐπειτ' ἐμοὶ τὰ δεινὰ ἐπηπείλησ' ἔπη,  
 Εἰ μὴ φανοίην πᾶν τὸ συντυχὸν πάθος,  
 Κἀνήρετ' ἐν τῷ πράγματι κυροῖ ποτε.  
 Κἀγὼ, φίλοι, δέισασα τοῦ ξειργασμένου  
 Ἐλεξα πᾶν δσον περ ἐξηπιστάμην.  
 Ὅ δ' εὐθὺς ἐξώμωξεν οἰμωγὰς λυγρὰς,  
 Ἀς οὐ ποτ' αὐτοῦ πρόσθεν εἰσέηκουσ' ἐγώ.  
 Πρὸς γὰρ κακοῦ τε καὶ βαρυψύχου γόβους  
 Τοιοῦσδ' αἶ ποτ' ἀνδρὸς ἐξηγεῖτ' ἔχειν ·  
 Ἀλλ' ἀψόφητος ὀξέων κωκυμάτων  
 Ἰπεστέναζε ταῦρος ὡς βρυχώμενος.  
 Νῦν δ' ἐν τοιαύτῳ κείμενος κακῇ τύχῃ  
 Ἀσιτος ἀνὴρ, ἀποτος, ἐν μέσοις βοτοῖς  
 Σιδηροκμήσιν ἥσυχος θακεῖ πεσών.  
 Καὶ δῆλός ἐστιν ὥς τι δρασείων κακόν.  
 Τοιαῦτα γὰρ πῶς καὶ λέγει κώδῦρεται.  
 Ἀλλ', ὦ φίλοι, τούτων γὰρ οὐνεκ' ἐστάλην,  
 Ἀρῆξαι εἰσελθόντες, εἰ δύνασθ' ἐτι.  
 Φίλων γὰρ οἱ τοιοῦδε νικῶνται λόγοις. — vss. 292 – 330.
2. T. Ἀλλ', ὦ φίλ' Ἀλας, πάντ' ἔγωγε πείσομαι.  
 A. Κόμιξέ νῦν μοι παῖδα τὸν ἐμὸν, ὡς ἴδω.  
 T. Καὶ μὴν φόβοισι γ' αὐτὸν ἐξελευσάμην.  
 A. Ἐν τοῖσδε τοῖς κακοῖσιν, ἢ τί μοι λέγεις ;  
 T. M. σοὶ γέ που δύστηνος ἀντήσας θάνοι.

- A. Πρέπον γέ τ' ἂν ἦν δαίμονος τοῦμοῦ τόδε.  
 T. 'Αλλ' οὐν ἐγὼ φύλαξα τοῦτό γ' ἀρκέσαι.  
 A. 'Επήνεσ' ἔργον καὶ πρόνοιαν ἦν ἔθου.  
 T. Τί δ' ἦτ' ἂν ὡς ἐκ τῶνδ' ἂν ὠφελοίμ' σε ;  
 A. Δός μοι προσειπεῖν αὐτὸν ἐμφανῇ τ' ἰδεῖν.  
 T. Καὶ μὴν πέλας γε προσπόλοις φυλάσσεται.  
 A. Τί δ' ἄρα μέλλει μὴ οὐ παρουσίαν ἔχειν ; — vss. 529 – 540.
3. Κρείσσων παρ' Αἰδᾶ κεύθων ὁ νοσῶν μάταν,  
 \*Ὅς ἐκ πατρίδας ἡκὼν γενεᾷς ἀριστος  
 Πολυπύωνν' Ἀχαιῶν,  
 Οὐκ ἔτι συντρόφοις  
 \*Ὅργαῖς ἐμπεδος, ἀλλ' ἐκτὸς ὁμιλεῖ.  
 \*Ὡ τλᾶμον πάτερ, οἷαν σε μένει πυθέσθαι  
 Παιδὸς δύσφρονος ἄταν,  
 \*Ἄν οὐπω τις ἰθρεψεν  
 Αἰῶν Αἰακιδᾶν ἄτερθε τοῦδε. — vss. 635 – 645.

Give the etymology of *σιδηροκμήσις*, *ἀλίπλεκτος*, *πωλοδαμνεῖν*, *νεακονῆς*, *δορυσσοήτων*, *νεοβράντις*.

Explain the construction of *εἰρκτέον*, *ἐκτίσaiτο*, *κυροῖ*, *ἐπήνεσα*, *μέλλει* *μη οὐ*, *οὐκ ἀψορόν* *ἐκνεμῆ* *πῶδα* ; Explain a tertiary predicate, accusative of contents, adverbial use of *χάριν*, *for the sake of*.

Describe the ancestry and fortunes of Ajax and Teucer in full. Give any anachronisms you remember in the play. Where were Sunium, Pisa, Bosphorus, Mount Sipylus ?

From what verbs and where formed are *ἐσσύθη*, *ἐπάξας*, *εῖριφθεῖς*, *φανοίην*, *ἐστάλην*, *ἀρεῖ*, *ἔσφηλε* ?

Explain the anapaestic system and the iambic trimeter acatalectic. Divide the first five verses into feet. Why is it *poeta* and not *poeta* in Latin ?

### THUCYDIDES (Book VI.).

(*Special Examination, March, 1872.*)

1. Translate : Ch. 16, from *καὶ οὐκ ἀχρηστος* to the end.  
 Ch. 32, through *ἡπείγοντο ἀφικέσθαι*.  
 Ch. 60, through *διὰ δίκης ἐλθεῖν*.
2. Explain the grammar of 14. *εἶναι δς ἂν*. 24. *ὡς ἂν σφαλεῖσαν*. 16. *καταλιπόντας*. 20. *σωφρονέστερον εἶη*. 61. *θεραπεύοντες*. 61. *παρελθοῦσα*. 61. *προδοθῆναι ἂν*. 97. *ἀκροῖς τοῖς κρημνοῖς*. 100. *ὁδᾶτος*.
3. Where and from what presents are these verbs made ? 15. *διαθέντι*. 18. *ξυγκραθέν*. 18. *ἐγγηράσσεσθαι*. 24. *σφαλεῖσαν*. 29. *ἐνιέντες*. 61. *κατέδαρθον*. 100. *ἐξεκρούσθησαν*.
4. Draw a map of Sicily, marking all the towns mentioned in ch. 3 and 4. Where were Andros, Chalcis, Megara, Mantinea, Cyme, Locri, Potidaea.
5. Grote, Ch. 57 – 59.
  - a. Draw a plan and give an account of the military operations before Syracuse, as described in Book VI. of Thucydides.
  - b. Explain fully the cause or occasion of Athenian intervention in Sicily.

c. Describe the career of Alcibiades up to the time of his recall from Sicily.

d. Give an account of the mutilation of the Hermæ; how far is the conduct of the Athenian people to be justified?

N. B. — You can omit any *one* of the last *three* questions in No. 5. Throughout the paper credit marks will be given for good notes.

**AJAX OF SOPHOCLES. — THUCYDIDES (BOOKS VI., VII.). — KNIGHTS OF ARISTOPHANES.**

(*Final Examination, June, 1872.*)

1. Translate Ajax 121 – 126; 815 – 822.  
Translate Thuc. VI. 97, through παραγενέσθαι.  
Translate Thuc. VII. 71, through ἐδουλοῦντο.
2. Explain the construction VII. 71 of ἀνεθάρσεναν ἀν. VII. 74 ἀναλαβόντες.
3. Where and from what presents are these verbs made? VII. 2 ἀπαντησόμενοι. 4. ἐτετάχατο (what peculiarity here?). 21. ἐκπλαγέντων. 23. διεφθάρσαν. 81. ἀφείναι.
4. Where were (VII. 57) Methymna, Zacynthus, Naupactus, Sicyon? Distinguish Ἰταλιῶται from Ἰταλοί.  
What grand distinction of race prevailed in general between the allies of Sparta and of Athens?  
Explain the allusion in the phrase (VII. 57, p. 180, line 15) εἰκότως κατὰ τὸ ἔχθος; (line 22) κατὰ τὸ νησιωτικὸν κατειργόμενοι.  
57, at the end. Who were the Τυρσηνοί?  
58, p. 182, line 1. What is the composition of νεοδαμῶδεις?  
Recount very briefly the events narrated in the Seventh Book. What is Grote's opinion of Nicias?
5. Translate Knights, vss. 409 – 420; 801 – 809.
6. Explain the allusions in and the composition of 18. κομψευρικῶς. 41. κναμοτρώξ. 414. ἀπομαγδαλίσ. 855. ὀστρακίνδα.  
What are the allusions in vss. 702, 792, 793 – 798?
7. Where and from what presents are these verbs made? 106. σπείσον. 421. προὔνοήσω. 822. ἐλελήθης.
8. Divide vss. 482 – 484, 353 – 355 into feet.

**Course III. (see page 57.)**

**ODYSSEY (BOOKS IX., XI., XII.).**

(*Special Examination, December, 1871.*)

1. Translate Od. IX. vss. 231 – 245; XI. vss. 582 – 600; XII. vss. 234 – 259.
2. Give the etymology of IX. 43 διερχέ. XI. 7 πλησιέσιον. 108. ἔφια. 117. ἔδνα. 172. ἰοχέαιρα. XII. 89. ἄωροι. 133. Ὑπερίων.

3. Explain the peculiarity of formation in XII. 117. *ὑπείξαι*. 54. *δι-δέντων*. 279. *εις*.

4. Where were IX. 40. Ismarus. 81. Cythera. XI. 581. Pytho. 256. Iolcus. 496. Hellas. 284. Orchomenus. 509. Scyros?

5. Where formed and from what verbs are IX. 40. *ἔπραθον*. 214. *ἐπιειμένον*. XI. 388. *ἀγγέραθ'*. 416. *πληγείσα*. XII. 298. *ὀμύσσετε*. 315. *δρῶρει*?

6. Give a brief account of Pelias, of Aeson, of Oedipus, of Phaedra, of Eriphyle, of Antiope.

#### GREEK PHILOLOGY.

N. B. You are required to answer eight only of the following questions.

1. Explain the pronunciation of *υ* and Latin *w*. Prove the original identity of all open vowels.

2. Explain the pronunciation of the rough mutes.

3, 4. Give the proofs of the existence of the digamma.

5. Etymology of *ἀαγής* λ. 575; of pronoun *ἐ* and *ἴδιος*.

6. Difference in form between *ἰδεῖν* and *εἰπεῖν*, and the etymology of these verbs.

7. Give the process by which *αῖα* became *οῦ* in the gen. sing. of *Αἰολός* (κ. 36).

8. Explain the acc. plur. of *βοῦς*; the gen. sing. and nom. and acc. plur. of *βασιλεύς*.

9. Give the various uses of Homeric forms in *φι* and explain the formation.

10. Explain the connection of *πολύς* with its comparative (masc. and neut.).

11. Enumerate the various classes of compounds with examples.

#### PLATO'S CRITO, AND PHAEDO (I. - XXII.).

(*Special Examination, March, 1872.*)

##### CRITO.

1. Translate IX. through *ἀδικεῖν*.

Translate XII. 50 D. from *ἀλλὰ τοῖς περὶ τὴν τοῦ γενομένου το ἐπιμελόμενος*.

2. Explain the grammar of 49 A. *ἐκόντας ἀδικητέον*,—53 C. *ἂν φανεῖσθαι*.

3. To what single word are (50 C.) *ἔρωτᾶν τε καὶ ἀποκρίνεσθαι* equivalent?

4. Where and from what presents are these verbs made? 44 B. *εὐρήσω*. 45 D. *οἰχήσει*. 49 A. *ἐκκεχυμέναι*.

##### PHAEDO.

5. Translate IV. through *ἐργάζου*.

Translate XIX. through *ἀνισότης*.

6. Explain the grammar of 66 B. *οὐ μὴ κτησώμεθα*. 67 B. *μὴ οὐ θεμ-τὸν ἦ*. 68 B. *οὐκ ἄρ' ἦν*. 72 A. *γίγνεσθαι*. 73 A. *ποιήσιν*. 72 D. *μὴ οὐχὶ καταναλωθῆναι*.

7. Describe the scene and circumstances of the Phaedo, with a very brief account of the persons who take part in the dialogue, and of those mentioned in 59 B., C.

What is Plato's Doctrine of Ideas?

Sketch the argument of the dialogue in these first twenty-two chapters.

8. Where and from what presents are these verbs made? 60 B. *συνημμένω*. 62 A. *ἵττω*. 68 A. *ἀπηλλάχθαι*. 68 C. *ἐπτοῆσθαι*. 69 E. *ἐντεύξεσθαι*.

## ODYSSEY (BOOKS IX., XI., XII.). — PLATO'S PHAEDO.

(Final Examination, June, 1872.)

1. Translate Od. IX. vss. 371–377; XI. vss. 601–612.

2. Translate XXXIII. through *ἀειδές* in 83 B; — XLVII. through *κάθμαι*; — and 109 A. *Ἐτι τοίνυν*, through 109 D. *ἐωρακός*.

3. Explain the grammatical construction of 86 D. *τί οὐκ ἀπεκρίνατο*; 107 C. *δόξειεν ἂν εἰ τις ἀμελήσει*. 60 C. *ἀναμνήσας*. 84 C. What does *λέγεσθαι* represent?

4. Where and from what presents are these verbs made? 86 C. *κραθῆ*. 109 B. *ξυπερρυηκέναι*. 169 D. *ἐκδδύς*.

5. Explain fully the special appropriateness of these phrases: 84 A. *Πηνελόπης . . μεταχειριζομένην*. 99 D. *δεύτερος πλοῦς*. 102 D. *ξυγγραφικῶς ἐρεῖν*.

What is the difference between *διασκοπεῖν* and *μυθολογεῖν*? Translate and explain 99 B. *διὸ δὴ . . ὑπερείδει*.

6. What are the current and the best explanations of the last words of Socrates (118 A.)? Give a brief analysis of the Phaedo with its successive arguments. With what Platonic doctrine are they fundamentally connected, and how is the connection traced?

## JUNIORS.

Course I. (see page 58.)

### AESCHINES AGAINST CTESIPHON.

(Special Examination, Nov., 1871.)

1. (a.) Translate § 10. Construction of *ὄντες* and *ἐξελεγχόμενοι*. Explain *εἰ φανήσεται* (use of *εἰ* and form of verb), *τυχόν*, *πρώην*, and *εὐθύνas* (*ὡφληκῶς* (peculiar use of *εὐθύνas*)).

(b.) Translate § 155. Explain *παραστησάμενος*, and also *ἐν . . ὀρχήστρῳ* in § 156.

(c.) Translate §§ 234, 235. Explain *πρὶν ἂν ἰσχύσῃ* and its dependence on *ἐπέθετο*: when does *πρὶν* regularly take the subjunctive, and when the optative? What other form would be used for *πρὶν γράψαι* in § 140, and which would be more regular?

(d.) Where are διατηρηθῶσω (§ 7), υποδέσθε (§ 156), ἀνατετραφῶτα (§ 158), ἐξηρηγμένους (§ 164), μετενήρεται (§ 193), εἶον (§ 235), formed, and from what verbs?

2. (a.) Translate and explain § 140: show position of Νίκαια; explain πρότερον ἐξήλασεν and πάλιν ἐπήγαγε; Ἐλάτειαν καταλαβὼν (describe the object of this movement, and the circumstances under which it was made; give its date, with the *time of year*); μετεπέμψαντο Ἀθ. (what had Dem. done to bring about this step?); πρὶν γράψαι (how far can this be true?).

(b.) Translate οὐχ . . ἀγωνίῃ in § 210, and explain οὐκ ἀτίμητος and ἐπιτιμία. Explain πρυτανεία (two meanings), and πρυτάνεις. Explain τὸν ἐπιστάτην τῶν προέδρων (§ 39), and compare Xen. Memor. I. i. 18, βουλευσας γὰρ ποτε, . . ἐπιστάτης ἐν τῷ δήμῳ γενόμενος.

3. Explain ἐβουλόμην διοικεῖσθαι (§ 2) and the dependent construction with ἵνα. Compare ἐκινδυνεύσαμεν ἀπολέσθαι (§ 123), and ἐβουλόμην ἀνελθεῖν (§ 115). Explain the following: tense of παραχωρήσαντες (§ 5); οὐδ' εἴποιμι, μὴθ' γένοιτο (§ 128); case of ᾧ before ἐξηρηγμένους (§ 164); ἐπίδοσος ἀλῶναι (§ 165); εἰ καλέσῃ (§ 202).

Show, by help of § 27 and § 219, when Ctesiphon proposed his decree, and when the indictment against it was brought by Aeschines.

### DEMOSTHENES ON THE CROWN.

(Special Examination, Feb., 1872.)

1. Translate §§ 15, 23, 56, 65, 152, 192, 281. Where are ἐπεπράκειν and ἐξεληλεγμένοι (§ 23) and προεξελεγμένα (§ 234) formed, and from what verbs?

2. Explain the meaning of τετύφωμαι, ἀνέδην (derivation), ἀν βουλομένοις, &c., and πομπείας (all in § 11); ὥσπερ ἐξ ἀμάξης (§ 122); and ὁμοίως (line 5 of § 30). What is the exact meaning of ἦν . . ἀπεσταλμένη (§ 23), and how is this to be reconciled with the statements of Aeschines on the subject? Explain the *form* of the apodosis to εἰ ἐπεπράκειν (§ 23).

3. When and under what circumstances was the decree of Callisthenes (§ 37) passed? In § 35, who are meant by οἷς μὲν and by οἷς δέ? What was the gravest mistake made by Athens in negotiating the Peace of Philocrates, and how was Aeschines responsible for it? How far is τρεῖς δλοὺς μῆνας correct in § 30? Show why the documents inserted in § 54, § 118, and § 181 cannot be genuine. What must have been the dates of the *genuine* documents, and how are they determined? What is the meaning of τὴν χειμερινήν (§ 216), and when must this battle have taken place?

4. In § 104, explain συνεκαίδεκα λειτουργεῖν, and translate and explain δοῦν ἐφάνη . . συντελής. Explain meaning and tense of διδόναι in § 103. Explain the form of the protasis εἰ μὴ ποιήσῃ in § 145, and point out its apodosis. In § 190, translate τοῦτ' . . λαθεῖν, and explain tense of δεῖν; explain both protasis and apodosis of the following sentence. In § 194, supply the ellipsis in ὥσπερ ἀν εἰ, and show what is implied as antecedent to ὥσπερ. Explain ὅπως κομισθήσεται (§ 301), and ὅπως ὑπάρξει (§ 302): is either a final clause? and how is a final clause with ὅπως distinguished from an object clause?

## AGAMEMNON OF AESCHYLUS.

(Special Examination, April, 1872.)

1. Translate vss. 104–112: κύριος . . αἶαν. (Read ἐκτελέων — μολπᾶν, — ἀλκᾶν — ξυμφορὰν ταγᾶν, — πράκτορι.) Explain σύμφυτος (cf. 894). On what does ὅπως πέμπει depend? Explain the construction of φανέντες (116), of βλαβέντα (120), and the meaning of λαγίναν γένναν (119).
2. Translate vss. 169–183: Οὐδ' . . ἡμένων. To whom do the first three verses refer? Explain case of ἡγεμών (184), and of ἀρωγάν (226).
3. Translate vss. 305–311. (Read εἰτ' ἀφίκετο in 308). Explain meaning of ἐσκηψεν (302 and 308), of καί (306), of ὑπερβάλλειν (307); and construction of πορθμοῦ (307). Explain vs. 314.
4. Translate vss. 385–401: βιάται . . γυναικός. What is the subject of ἐνθεῖς (395)? Explain meaning of vs. 394.
5. Translate vss. 914–925. Explain construction of αἰνεῖν (917), of βόαμα (920), of θνητὸν ὄντα (923); and the composition of χαμαιπετές (920).
6. Translate and explain vss. 1025–1029. Explain meaning of πλέον φέρειν, and form of ἐξέχει.
7. Translate vss. 1279–1290. (Read λούσα πρᾶξω in 1290.) Explain meaning of πρᾶξω and of θριγκώσω. To whom do vss. 1280–1285 refer?
8. Translate vss. 1551–1559. Explain the form κάππεσε.
9. Explain the form and meaning of νυκτίπλαγκτος (12; 330), ἀγγάρου (282), ἀναμπλάγκτος (345), ἐφήλωσεν (492), αὐτόχθονον (536); the meaning of ἀπύρνον ἱερῶν (70), ἀπτερος φάτις (276), οὐτις ἀλκά (466), ἀμφὶ Πλειάδων δύσω (826), χαίροιτ' ἂν εἰ χαίροιτ' (1394: cf. 1049); and the construction of παῖδες γερόντων (328), εὐφρόνης (279), εἶροι (606). Why cannot the last be the optative of *oratio obliqua*?
10. What is a *trilogy*, and what is a *tetralogy*? What tragedies of Aeschylus are preserved, and which of them can be assigned to trilogies? Where is the scene of the Agamemnon laid? Why did Aeschylus not follow Homer here?

## AGAMEMNON OF AESCHYLUS. — ANTIGONE OF SOPHOCLES. — KNIGHTS OF ARISTOPHANES. — AESCHINES AGAINST CTESIPHON. — DEMOSTHENES ON THE CROWN.

(Final Examination, June, 1872.)

1. Translate ANTIG. vss. 117–133 (read καναχή θ' in 130): vss. 259–275; vss. 705–717; vss. 1206–1218.  
Explain meaning of καλχαῖνονσ' (Ant. 20), construction of τᾶφον (21), force of tense in ἀτιμάσας ἔχει (21, cf. 32), meaning of vs. 40, meaning of σφέ (44), case of τροπὰς (675), form and meaning of χρῆ (887), case of ῥῶσα (888). Translate 499 and 500, and explain change of negative; state objections to ἐγκλείσοι (505); explain στήσκει (666).
2. Translate KNIGHTS, vss. 225–234; vss. 752–762; vss. 1141–1150.  
In what voice, mood, and tense, and from what verbs are ἔρρει (Knights, 527), ἔξει (760), ἐψοίμην (770), χαριώμην (776), κεκλόφωσι (1149). Explain construction (mood and tense) of the last three.  
Explain the metre of Knights, vss. 349, 350; 581, 585; 938, 939,



940; 975, 976; 1119, 1120. What substitutions for the iambus are allowed in the *iambic trimeter acat.*, first in tragedy, secondly in comedy?

3. Give the dates of the birth and death of Aeschylus, of Sophocles, and of Euripides. What tragedies of Sophocles are preserved? Compare the mutual relation of his three tragedies on the Theban myth with that of the last three tragedies of Aeschylus. What is the date of the Frogs of Aristophanes, and what is its subject? Give the names and dates of the six earliest comedies of Aristophanes; which of these did he exhibit in his own name, and which are preserved?

4. Translate DEMOSTHENES, §§ 189, 190. Describe the circumstances of Philip's capture of Elatea, and give its date (*year and season*).

## SENIORS.

### Course I. (see page 60.)

#### SOPHOCLES (OEDIPUS TYRANNUS).

(*Special Examination, November, 1871.*)

1. Translate vss. 65–77. Explain *ρυσαιμην*. Explain *ικηται*, *μη δρων*, *ειην*, and *δηλοι* (in 76, 77). Compare *μη δρων* with *μη ου κατοικτελων* in vs. 13: what is unusual in the last expression?

2. Translate 191'–202 (reading *τελει γαρ ει τι* in 198). Irregularity in *ει τι αφοη*. Construction of *ασπιδων* (191).

3. Translate 583–602. Explain *ει ξεει* (586). Meaning of *ενταυθ' ενι* (598). Construction of *αφεις* (599). Meaning of *πασι χαλρω* (596).

4. Translate 863–871. Explain *κατακοιμωση*, and *νιν* (after *ων*).

5. Translate 1369–1383. Construction of *τον φανεντα*, &c. (1382). Explain *τω ην* (1299) and *ως εδειξα* (1392).

6. Translate and explain *ενθα μη . . λυη* (316), and *ουκ ει . . οισερε*; (637, 638); and explain 1011 (with *εξελθου*), and 917 (*λεγου* or *λεγη*?).

7. Explain metres of 484–487; 1329, 1330; 1303, 1304, 1305; and 1524.

#### AESCHYLUS (EUMENIDES). — ARISTOPHANES (ACHARNIANS).

(*Special Examination, February, 1872.*)

Translate:—

1. EUMENID. vss. 94–105. (Read *ως* for *ων* in 96.) Explain the changes in the construction.

2. Vss. 179–184. Show how vss. 140–177 were probably divided between members of the Chorus.

3. Vss. 235–243.

4. Vss. 794–807.

5. Vss. 996–999 (4 verses).

6. ACHARN. vss. 319–332. Explain *μη ου* and *φουκιδα* in 320.

7. Vss. 526–543. Explain the historic basis of this passage, the con-

struction of *ὅπως* in 536, the meaning of *φῆναι* in 542, and the argument of 541–543.

8. Vss. 736–741. Explain Dorisms.

9. Vss. 885–894. Explain parody in last verses.

### AGAMEMNON OF AESCHYLUS.

(*Special Examination, April, 1872.*)

The same paper as in Junior Course 1 (see, above, p. 175).

AESCHYLUS (AGAMEMNON AND EUMENIDES). — SOPHOCLES (OEDIPUS TYRANNUS). — ARISTOPHANES (ACHARNIANS). — LYRIC POETS (SELECTIONS).

(*Final Examination, June, 1872.*)

1. Translate EUMEN. vss. 604–621 (*τί δ' οὐκ . . . πλέων*). In vs. 618, is *κελεύσαι*, *κελεύσῃ*, or *κέλευσε*, the best emendation of the Mss. reading *κελεύσει*? — how is each to be explained?

2. Translate ACHARN. vss. 971–987 (*εἶδες . . . ἀμπελών*).

3. Translate OED. TYR. vss. 816–833 (*τίς . . . ἀφίγμενῃ*), and vss. 1186–1204 (*Ἰὼ . . . ἀνάσσων*). Explain *μή* in 817 and 818.

4. Translate SOLON's *Salamis*, vss. 1–20 (Demosth. F. Leg., § 255).

Translate PIND. Olymp. VI. vss. 56–70 (93–119): *τὸ καὶ . . . κέλευσεν*. Explain construction of *τέκοι*, vs. 49 (82), meaning of *τὸ* (first word), form of *φᾶ* and *γαγάκειν*, vs. 49 (83), and of *ἐλαυνόντεσσιν*, vs. 76 (127).

5. With what political motive did Aeschylus write the *Eumenides*? In what year was it exhibited, and what special danger was threatened at that time? What political bearing did the allusions to Argos (vss. 767–774) have? What similar motive is to be found in the *Agamemnon*? What tragedies of Sophocles are preserved? Compare the mutual relation of his three tragedies on the Theban myth with that of the last three tragedies of Aeschylus. Give the names and dates of the six earliest comedies of Aristophanes; which of these did he exhibit in his own name, and which are preserved?

### Course II (see page 60.)

PLATO'S REPUBLIC (BOOKS I., II., III., IV.).

(*Special Examination, December, 1871.*)

1. Translate the following passages: —

(a.) Book I., Chap. 5, *through* the poetry. How does *μή . . . ὥστε* (line E) differ from *μή . . . εἰσὶν*? Explain *tense* of *καταγελῶμενοι*.

(b.) Book II., Chap. 16, *through* *δεῖν εἶναι* (376 C). Compare *ὃν ἂν ἴδῃ* with *κἄν . . . πεπνυθῇ* (376 A).

(c.) Book IV., Chap. 10, *from τοῦτο τοίνυν* (433 B) *through* *πόλεως θείης* (433 E). Construction of *γινόμενον* (l. 3 of B)? *Tense* of *ἐπραττε* (l. 3 of D)?

2. What two theories of Justice are discussed in Book I.? What are

the three classes in Plato's State, and the three corresponding divisions of the Mind? How does Plato define the Cardinal Virtues, first in the state, then in the individual? What is the highest perfection in the state and in the individual; and what is the perfect form of government (according to Plato)?

PLATO'S PROTAGORAS, AND REPUBLIC (BOOKS V., VI., VII.).

(*Special Examination, February, 1872.*)

1. Translate PROTAG., Chap. 5, through ἐπιτρέπω (l. 3 of 313 C). Compare εἶτε οὐ (A, l. 5) with εἶτε μή (B, l. 6). Explain construction and meaning of συνεστέν (B, l. 7). Supply the object of διελθεῖν (in Greek).

2. Translate PROTAG., Chap. 35, from ἴθι δὴ (p. 352 E) through the chapter. Explain ἐπεὶ . . . γινώσκων (A, line 2), ἄν (A, l. 3), ὅτι μαθόντα, οὐκ ἔχοντα (353 D). Translate and explain μή ἐστι . . . ἄλλο, οὐκ ἐστι μή τι (351 C).

3. Translate REPUB., Book V., from Εὐρήκαμεν (479 D) through the book. Translate and explain πότερον οὐν . . . εἶναι (479 B).

4. Translate REPUB., Book VI., from ἕκαστος (493 A) through παιδεύτης (493 C). Explain case of ἕκαστος and use of μή in the first sentence; the forms of protasis after ἐῖ (last line of A); and the optatives in C. Why is ἀκολουθήσαι aorist (in 490 C)?

5. Compare Protag. 358 A τὸ μὲν ἡδὺ ἀγαθὸν εἶναι, &c., with Repub. 505 C and 509 A (end), showing how far the two views can be reconciled; confirm your statements by references to the Protagoras. What was the most famous doctrine of Protagoras, and in what relation does this stand to Plato's theory of Ideas? What doctrines of Heraclitus, and what of the Eleatics, most affected Plato's speculations? What is meant by ἄλλη μακροτέρα περίοδος (Repub. 504 B)?—and to what definition of Justice would this lead?

PLATO'S PROTAGORAS, AND REPUBLIC (PARTS OF I. - VII.). —  
ARISTOTLE'S NICOMACHEAN ETHICS (I. - IV., X.).

(*Final Examinations, May and June, 1872.*)

1. Translate ARIST. Eth. I., Chap. 5 (ed. Bekk.), §§ 3-6; Chap. 6, §§ 14, 15. Eth. II., Chap. 3, §§ 1-3; Chap. 5, §§ 4-7. Eth. III., Chap. 2, §§ 16-18.

2. Translate ARIST. Eth. III., Chap. 10, 11, §§ 10-13. Eth. IV., Chap. 2, 3, §§ 26-30. Eth. X., Chap. 7, §§ 7, 8.

Explain Aristotle's account of virtue as a mean; and give his double statement of courage, with two pairs of extremes. Explain πλὴν ἐπὶ μικροῖς (IV. 3. 29).

3. Translate PLAT. Protag., Chap. 23, through ἀρνεσθαι (p. 349 A).

Translate PLAT. Repub. VI., Chap. 19, through ἐνοῦσα φαίνεται (p. 508 D).

4. State Aristotle's division of ψυχὴ and Plato's, and show how they differ. What analogy does Plato draw between the human soul and the state, and how (in accordance with this) does he define the four cardinal virtues in each? What is Aristotle's distinction between intellectual and moral virtues, and to which does he give the higher rank?

## Course III. (see page 60.)

## THUCYDIDES (Book I.).

(Special Examination, December, 1871.)

1. Translate Chap. 3. Explain tense of *ἐργασαμένη* (l. 3), *εἶναι* (l. 5), *παρέχεσθαι* (l. 7), *καλείσθαι* (l. 10), giving form of direct discourse. Different constructions of *δοκεῖ* in different clauses? Construction of *ἐπαγαμένων* (l. 9)? Who were the sons of Hellen, and how were they connected with the Greek races? Force of *καὶ πάνν οὐδὲ εἶναι* (l. 5), of *ἄλλα τε καὶ* (l. 6), and of *ὥς ἕκαστοι* (p. 3, l. 4)? Construction of *Ἕλληνες* (same line)?

2. Translate Chap. 70, *from κρατούντες τε* (p. 42, l. 10). Force of *aorist* subjunctive in several cases? Explain tense of *ἐπλήρωσαν* (l. 18), of *πράξαντες* (l. 17). Is *ὅπως μὴ . . βουλευθήσθε* irregular in Chap. 73, l. 6?

3. Translate Chap. 90, *through καὶ ἀφορμήν* (l. 13). Equivalent of *ἥδιον ἂν ὀρώντες*? Literal meaning and construction of *ὥς . . οὐκ ἂν ἔχοντος* (l. 10)? Meaning and use of *σφῶν*, and case of *δοσις* (l. 8)?

4. Translate Chap. 121. Comment on *ξυμπροπέμψειν* and *εἰ ἐθέλοι . . βούλεται* (Ch. 27); and on *οὐ μετόν, εἰ ἀντιποιοῦνται, αἷς ἂν ξυμβῶσιν*, and *εἰ δὲ μὴ* (all in Chap. 28). *Ellipsis* in *εἰ δὲ μὴ*?

## THUCYDIDES (Book II.).

(Special Examination, February, 1872.)

1. Translate the following passages in Book II.:—

Chap. 15, *ἐπειδὴ δὲ Θησεὺς . . μάλιστα τετραμμένον*.

Chap. 42, *from τῶνδε δὲ οὐτε πλούτῳ* to the end.

Chap. 48, *from λεγέτω μὲν οὖν* to the end.

Chap. 53 (whole).

Chap. 87, *from περιγίγνεται δὲ ὑμῖν* to the end.

2. Comment on *βουλευτήριον* and *πρυτανεῖον* (Ch. 15); *αὐτῶν* (before *λαβόντες*, Ch. 42); *κατορθώσῃ* and *μᾶλλον ἡγησάμενοι* (Ch. 42); *ιδιώτης* and *ἄστινας* (Ch. 48); *τὸ προσταλαίωρεῖν* and *βίους ἂν . . ἀντιδοῦναι* (Ch. 53); *ταῦτα προσγενόμενα* and *μὴ προλείποντες* (Ch. 87); *ἔτι δύο μῆνας* (Ch. 2); *τὰ ἀγγὲλαινεν, εἰη, γένοιτο, and γίγνεσθαι* (Ch. 13); *περιιδεῖν τμηθεῖσαν* (Ch. 18), compared with *περιδεῖν τμηθῆναι* and *περιόψεσθαι διαφθαρέντα* (Ch. 20), explaining the *tense* of the participles; *νομηγία κατὰ σελήνην* (Ch. 28); *ἀπορία τοῦ μὴ ἡσυχάζειν* (Ch. 49); *ἐπεβῶ* (Ch. 65).

3. Discuss briefly the following subjects:—

Three classes of inhabitants of Laconia; origin of each. Origin of double kingdom at Sparta. Relation of kings to Ephors.

Tribes of the Solonian constitution and those of Cleisthenes. Subdivisions of former.

Confederacy of Delos; its object and constitution. How changed to an empire?

Battles of Tanagra and Oenophyta (with dates). How connected with the building of the Long Walls?

## THUCYDIDES (BOOKS I. - IV.).

(Final Examination, June, 1872.)

1. Translate I. 23, through τοῖς Ἑλλήσι κατέστη. Explain τοῦ ζήτησαι, and the changes of construction in the fourth sentence.

2. Translate II. 52.

3. Translate II. 62, from ὥστε οὐ κατὰ τὴν τῶν οἰκῶν. Explain μᾶλλον ἢ οὐ, and also the common use of μὴ οὐ with the infinitive, &c.

4. Translate III. 82, through ἀντήλλαξαν τῇ δικαιοσύνῃ.

5. What were the chief migrations caused by the Dorian invasion? What are the two prevailing views of the origin of the Ionians? What does Herodotus (I. 56) mean, when he calls the Dorians *Hellenic* and the Ionians *Pelagic*? — and how does this agree with the common story of Hellen and his sons? What traces of the name *Graeci* are found in Greek writers?

Compare the tribes of Cleisthenes with those which belong to the earlier constitution of Athens.

How and when did Naupactus become an *Athenian* naval station?

What was the view of Pericles of the mutual relations and duties of Athens and her allies?

## LATIN.

## FRESHMEN (see page 55.)

LIVY (BOOK XXI.).

(Special Examination, December, 1871.)

NOTE. — Of the three passages in Part I. translate (A) and either (B) or (C); but omit nothing in Part II.

I. (A.) — XXII., XXIII. Ibi fama est in quiete visum ab eo juvenem divina specie, qui se ab Jove diceret ducem in Italiam Hannibali missum; proinde sequeretur, neque usquam a se deflexeret oculos. Pavidum primo, nusquam circumspicientem aut respicientem, secutum, deinde cura ingenii humani, quum, quidnam id esset quod respicere vetitus esset, agitare animo, temperare oculis nequivisse eum; vidisse post sese serpentem mira magnitudine cum ingenti arborum ac virgultorum strage ferri, ac post insequi cum fragore caeli nimbum. Tum, quae moles ea quidve prodigii esset, quaerentem audisse, vastitatem Italiae esse; pergeret porro ire, nec ultra inquireret, sineretque fata in occulto esse.

Hoc visu laetus tripartito Iberum copias trajecit, praemissis qui Gallorum animos, qua traducendus exercitus erat, donis conciliarent Alpiumque transitus specularentur.

(B.) — VII., VIII. Ut vero Hannibal ipse, dum murum incautus subito, adversum femur tragula graviter ictus cecidit, tanta circa fuga ac trepidatio fuit, ut non multum abesset, quin opera ac vineae desererentur.

*Obsidio* deinde per paucos dies magis quam *oppugnatio* fuit, dum vulnus ducis *curaretur*; per quod tempus ut quies certaminum erat, ita ab apparatu operum ac *munitionum* nihil cessatum. Itaque acrius de integro coortum est bellum, pluribusque *partibus*, vix accipientibus quibusdam opera *locis*, vineae *coeptae* agi admoventurque aries.

(C.) — VIII. Phalarica erat *Saguntinis*, missile telum *hastili* abiegnō et *cetera* tereti praeterquam ad extremum, unde ferrum exstabat. Id, sicut *in pilo*, quadratum stappa circumligabant lineabantque pice; ferrum autem tres longum habebat *pedes*, ut cum armis transfigere corpus *posset*. Sed id maxime, etiam si *haesisset in scuto* nec penetrasset *in corpus*, pavorem faciebat, quod, quum medium accensum *mitteretur* conceptumque ipso motu *multo* majorem ignem ferret, arma omitti cogebat nudumque militem ad insequentes ictus praebebat.

II. (A.) — Write out the first sentence (*Ibi fama . . oculos*) and the last but one (*Tum quae moles . . in occulto esse*) as Oratio recta. Explain the case of *specie*, *prodigii*, *visu*, *praemissis*; the mood and tense of *conciliarent*.

(B.) — Explain the tense of *subit*, *cecidit*; the case of *femur*, *partibus*, *locis*; the mood of *curaretur*. Explain the connection of the clauses *ut . . abesset* and *quin . . desererentur*, and the mood of each verb. Show from their derivation the difference between *obsidio* and *oppugnatio*. What is here meant by *munitionum*? Instead of *coeptae* what other form of the same verb might have been used? What were the *vineae* and the *aries*?

(C.) — Explain the case of *Saguntinis*, *hastili*, *cetera*, *pedes*, *multo*; the force of *in* (*in pilo*); the mood and tense of *posset*, *haesisset*, *mitteretur*. *In scuto . . in corpus*: explain the change of case. What was the *pilum*, and in what respect does Livy say the *phalarica* resembled it?

III. — How old was Livy when the battle of Actium was fought? How old was he when he died? Give the date in each case. Name three distinguished poets contemporary with Livy.

When was the end of the First Punic War? How were the Carthaginians engaged during the next three or four years? How long was the interval between the First and the Second Punic War? In what year was Hannibal chosen commander-in-chief, and about how old was he?

What and where were *Gades*, *Iberus*, *Massilia*? Give the modern names.

#### LATIN COMPOSITION.

(Final Examination, February, 1872.)

Translate into English (Livy, XXXIV. 14) :—

Nocte media, quum auspicio operam dedisset, [Cato] profectus, ut locum, quem vellet, priusquam hostes sentirent, caperet, praeter castra hostium circumducit, et prima luce, acie instructa, sub ipsum vallum tres cohortes mittit. Mirantes barbari ab tergo apparuisse Romanum, discurrere ipsi ad arma. Interim consul apud suos, "Nusquam, nisi in virtute spes est, milites," inquit, "et ego sedulo,<sup>1</sup> ne esset, feci. Inter castra et nos, medii hostes."

<sup>1</sup> sedulo = carefully.

Translate into Latin : —

1. "The territory of the enemy is in the rear. What is most honorable is also safest, — to have your hope based<sup>1</sup> on virtue." Upon this he orders the cohorts to be withdrawn<sup>2</sup> that he might draw<sup>3</sup> out the barbarian by a pretence of flight. What he had trusted came to pass. Thinking the Romans had been greatly<sup>4</sup> frightened and were yielding, they burst out and fill with armed men as much space<sup>5</sup> as had been left between their camp and the enemies' line. While they are-in-commotion<sup>6</sup> from drawing up their line, the consul, with all [his own men] prepared and in rank,<sup>7</sup> attacks them in their<sup>8</sup> disorder.

2. And since the same duties are not assigned to unequal ages, and some belong to young men, others to old men, something must be said about this distinction. It belongs therefore to a young<sup>9</sup> man to fear his elders, and to select the best of them on whose counsel and authority to lean;<sup>10</sup> for the ignorance<sup>11</sup> of opening<sup>12</sup> life must be regulated<sup>13</sup> and ruled by the foresight of old men.

<sup>1</sup> pono. — <sup>2</sup> recipio. — <sup>3</sup> a verb from the same root as delecto, oblecto, &c. — <sup>4</sup> express by a compound verb. — <sup>5</sup> locus. — <sup>6</sup> trepido. — <sup>7</sup> ordino. — <sup>8</sup> incompotitus. — <sup>9</sup> i. e., one growing up. — <sup>10</sup> nitor. — <sup>11</sup> inscitia. — <sup>12</sup> inco. — <sup>13</sup> constituo.

# LIVY (BOOKS XXI., XXII.).

(Special Examination, February, 1872.)

NOTE. — In Part I. translate *one* passage only, — either (A.) or (B.); but omit nothing in Part II.

I. (A.) — XXI. 45. [Hannibal militibus] vocatis ad concionem certa praemia pronuntiat, in quorum spem *pugnarent*: agrum sese daturum esse in Italia, Africa, Hispania, ubi quisque *velit*, immunem ipsi qui *accepisset liberisque*; qui pecuniam quam agrum *maluisset*, ei se argento satisfactorum; *qui* sociorum cives Carthaginienses fieri vellent, potestatem facturum; *qui* domos redire *mallent*, daturum se operam, ne cuius suorum popularium mutata secum fortunam esse *vellent*. Servis quoque dominos prosecutis libertatem proponit, binaque pro his *mancia* dominis se redditurum. Eaque ut rata *scirent* fore, agrum laeva manu, dextera silicem retinens, *si falleret*, Jovem ceterosque precatus deos, *ita se mactarent, quemadmodum ipse agrum mactasset*, et secundum precationem caput pecudis saxo elisit. Tum vero omnes — velut diis auctoribus in spem suam *quisque* acceptis — *id morae*, quod nondum *pugnarent*, *ad potianda sperata* rati, proelium uno animo et voce una poscunt.

(B.) — XXII. 5. Ceterum prae strepitu ac tumultu nec consilium nec imperium accipi poterat; tantumque aberat, ut sua *signa* atque *ordinem* miles et *locum* nosceret, ut vix ad arma capienda aptandaque pugnae competeret animus, opprimerenturque quidam, onerati magis his quam tecti. . . Deinde ubi in omnes partes nequidquam impetus capti, et ab lateribus montes ac lacus, a fronte et ab tergo hostium acies claudebat, apparuitque nullam, nisi in dextera ferroque, salutis spem esse, tum sibi quisque dux adhortatorque factus ad rem gerendam, et nova de integro exorta pugna est, non *illa* ordinata per *principes hastatosque* ac *triarios*, nec ut pro signis *antesignani*, post signa alia pugnaret acies, nec ut in sua *legione* miles aut *cohorte* aut *manipulo* esset; fors conglobat, et animus

suus cuique ante aut post pugnandi ordinem dabat ; tantusque fuit ardor armorum, adeo intentus pugnae animus, ut eum motum terrae, qui multarum urbium Italiae magnas partes prostravit avertitque cursu rapidos amnes, mare fluminibus invexit, montes lapsu ingenti proruit, nemo pugnantium senserit.

II. (A.) — Explain the mood and tense of *pugnarent*. How can you account for Livy using a primary tense (*velit*) and secondary tenses (*accepisset*, &c.) in the same *oratio obliqua*? Which is more regular, and why? Explain the case of *liberis*. What would *accepisset*, *maluisset*, *mallent*, *daturum se*, *vellent* be in *oratio recta*? In what case would the antecedents respectively of the clauses *qui sociorum . . vellent* and *qui domos redire mallent* be, if expressed? Give the rule for the case in each instance. What is the derivation and first meaning of *mancipium*? Explain the tense of *scirent*. Write (in Latin) Hannibal's prayer in his own words, which Livy quotes indirectly : *si falleret, ita se mactarent, quem admodum ipse agnum mactasset*. Explain the construction of *quisque* and of *id*. What is there remarkable in the construction of *ad potianda sperata*?

(B.) — Explain the expression *signa* (as used in this sentence), *ordinem*, *locum*. Force of *illa*. Who were the *principes*, the *hastati*, and the *triarii*? What was the *legio*, the *cohors*, and the *manipulus*? Describe briefly the arrangement of the Roman *acies*. What was the purpose of this arrangement, and its advantage over the phalanx? What was the position of the *signa* in the Roman line, and who were the *antesignani*?

## CICERO DE SENECTUTE.

(Special Examination, February, 1872.)

Translate (omitting passages in brackets) I., II., and either III. or IV.

I. — IV. 10. Ego Q. Maximum, eum qui Tarentum recepit, adolescens ita dilexi senem ut aequalem. Erat enim in illo viro comitate condita gravitas, nec senectus mores mutaverat ; quamquam eum colere coepi non admodum grandem natu, sed tamen jam aetate provectum. Anno enim post consul primum fuerat quam ego natus sum, cumque eo quartum consule adolescentulus miles ad Capuam profectus sum, quintoque anno post ad Tarentum. [Hic et bella gerebat ut adolescens, quum plane grandis esset, et Annibalem juveniliter exsultantem patientia sua mollebat ;] de quo praeclare familiaris noster Ennius : —

Unus homo nobis cunctando restituit rem,

Non enim \* rumores ponebat ante salutem.

Ergo postque magisque viri nunc gloria claret.

11. Tarentum vero qua vigilantia, quo consilio recepit ! quum quidem me audiente Salinatori, qui amisso oppido fugerat in arcem, gloriantique ita dicenti, Mea opera, Q. Fabi, Tarentum recepisti, Certe, inquit ridens, nam nisi tu amisisses, nunquam recepissem. Nec vero in armis praestantior quam in toga, qui consul iterum, Sp. Carvilio collega quiescente, C. Flaminio tribuno plebis quoad potuit restitit agrum Picentem et Gallicum viritim contra senatus auctoritatem dividenti ; [augurque

\* So the MSS. unmetrically. How will you correct it?



quum esset, dicere ausus est optimis auspiciis ea geri quae pro rei publicae salute gererentur, quae contra rem publicam ferrentur contra auspicia ferri].

II. — 34. Audire te arbitror, Scipio, hospes tuus avitus Masinissa quae faciat hodie nonaginta natus annos; quum ingressus iter pedibus sit, in equum omnino non adscendere; quum equo, ex equo non descendere; nullo imbre, nullo frigore adduci ut capite operto sit; summam esse in eo corporis siccitatem; itaque omnia exsequi regis officia et muneris. Potest igitur exercitatio et temperantia etiam in senectute conservare aliquid pristini roboris. Non sunt in senectute vires. Ne postulatur quidem vires a senectute. Ergo et legibus et institutis vacat aetas nostra muneribus iis quae non possunt sine viribus sustineri. Itaque non modo quod non possumus, sed ne quantum possumus quidem cogimur. 35. At ita multi sunt imbecilli senes ut nullum officii aut omnino vitae munus exsequi possint. At id quidem non proprium senectutis vitium est, sed commune valetudinis. Quam fuit imbecillus P. Africani filius, is qui te adoptavit! quam tenui aut nulla potius valetudine!

III. — XIV. 46. Ego vero propter sermonis delectationem tempestivis quoque conviviis delector, nec cum aequalibus solum, qui pauci admodum restant, sed cum vestra etiam aetate atque vobiscum; habeoque senectuti magnam gratiam quae mihi sermonis aviditatem auxit potionis et cibi sustulit. Quod si quem etiam ista delectant, ne omnino bellum indixisse videar voluptati cujus est etiam fortasse quidam naturalis motus, non intelligo ne in istis quidem voluptatibus ipsis carere sensu senectutem. Me vero et magisteria delectant a majoribus instituta; et is sermo qui more majorum a summo adhibetur in poculis; et pocula, sicut in Symposio Xenophontis est, minuta atque rorantia, et refrigeratio aestate, et vicissim aut sol aut ignis hibernus. [Quae quidem etiam in Sabinis persequi soleo, conviviumque vicinorum quotidie compleo, quod ad multam noctem quam maxime possumus vario sermone producimus. 47. At non est voluptatum tanta quasi titillatio in senibus. Credo: sed ne desideratio quidem. Nihil autem molestum quod non desideres. Bene Sophocles, quum ex eo quidam jam affecto aetate quaereret, utereturne rebus venereis; Dii meliora! inquit: libenter vero istinc sicut a domino agresti ac furioso profugi.]

IV. — Horae quidem cedunt et dies et menses et anni, nec praeteritum tempus unquam revertitur, nec quid sequatur sciri potest. Quod cuique temporis ad vivendum datur, eo debet esse contentus. 70. Neque enim histrioni ut placeat peragenda . . est; modo in quocunque fuerit actu probetur; nec sapienti usque ad Plaudite veniendum est. Breve enim tempus aetatis satis est longum ad bene honesteque vivendum. Sin processeris longius, non magis dolendum est quam agricolae dolent, praeterita verni temporis suavitate aestatem auctumnumque venisse. Ver enim tamquam adolescentiam significat ostenditque fructus futuros: reliqua tempora demetendis fructibus et percipiendis accommodata sunt.

1. Give the principal parts of *operto* (II.), *reperio*, *demetendis* (IV.). Show how the form of *significat* (IV.) tells its component parts. Give the derivation of *auspiciis* (I.), *delecto* (III.), *aviditas* (III.), *poculum* (III). Discuss the form of this last ending.

2. *Provectum aetate* (I.). Turn this into a dependent clause. (Give the Latin.) What kind of an ablative is *auspiciis*? (I.) What would

*gererentur* (I.) be in direct narration? Explain in full the construction of *capite aperto* (II.), the force of *ad Capuam* (I.), of *istinc* (III.), and of the clause *ne . . . videar* (III.). *Habere gratiam* (III.). What other phrases with *gratia* (gratitude or favor)? What word or words does *quam maxime possumus* (III.) qualify?

3. Who is the chief speaker in this dialogue? What offices did he fill, and in what years? In what war were the events alluded to in I.? When is this dialogue supposed to be spoken? How old was this speaker then? Was it before or after the last war with Carthage? How nearly was he contemporary with Ennius? "*Licuit in Hispaniam ire, ubi fratrem consilii participem haberem*," "*Servati consulis decus malim de filio verum esse*" (Livy, XXI. 41, 46). Livy is here speaking of the Battle of the Ticinus, B. C. 218; who are *consul*, *filius*, *frater*; and how are they related to the *Scipio* in 34? What sort of a measure is that alluded to in I. as proposed by Flaminius? What party did Flaminius belong to, and what was his end?

4. What are the four arguments against old age handled in this book? Give the second somewhat at length. What does *at* at the beginning of 35 and 47 introduce? Supply the missing word for *play* in IV. Say anything you know of *either* Xenophon or Sophocles; also of *either* the Roman plays, or the arrangements of a Roman banquet.

#### ODES OF HORACE (BOOK I.).

(*Special Examination, April, 1872.*)

Translate Od. iii. 25-33; x. 1-8; xiv. 9-20; xxvii. 9-20; Book IV. Od. vii. 1-12.

What are the principal parts of *deterget* (vii. 15), *transiliiat* (xviii. 7), and *expavit* (xxxvii. 23)? Explain the formation of *colonus* (xxxv. 6); of *Tempe* (xxi. 9).

Explain the construction of *membra* (i. 21); of *Lycæo* (xvii. 2); and of *gaudeat* (xxv. 18).

What poetical peculiarity in *sequi* (xv. 18); in *properentque* (xxx. 6)? How would *quippe revisens* (xxxi. 13, 14) be expressed in prose by a dependent sentence? How does the metre guide you in the translation of xv. 5?

Give very concisely the mythological and historical allusions in ii. 21, 22; xxi. 12; and xxxvii. 13. How old was Horace when Cato killed himself? What are the distinctions between *lituus* and *tuba*, *patera* and *cyathus*?

#### LIVY AND SENECA.

(*Final Examination, June, 1872.*)

LIVY (Book XXI. 12, 13).

Translate either (A.) or (B.), omitting the passages in brackets:—

(A.)—*Temptata deinde per duos est exigua pacis spes, Alconem Saguntinum et Alorcum Hispanum. Alco, insciis Saguntinis, precibus aliquid moturum ratus, cum ad Hannibalem noctu transisset, postquam nihil*

lacrimae *movebant*, condicionesque tristes ut ab irato victore ferebantur, transfuga ex oratore factus apud hostem mansit, moriturum adfirmans, qui sub condicionibus iis de pace ageret. *Postulabatur autem*, redderent res Turdetanis, traditoque omni auro atque argento egressi urbe cum singulis vestimentis ibi *habitarent*, ubi Poenus *iussisset*. [Has pacis leges abnuente Alcone accepturos Saguntinos, Alorcus . . ad *praetorem* Saguntinum est deductus. Quo cum extemplo concursus *omnis generis* hominum esset factus, submota cetera multitudine senatus Alorco datus est, cujus talis oratio fuit :]

(B.) — “. . Vestra autem causa me, nec *ullius alterius*, loqui quae loquor apud vos, *vel ea* fides sit, quod neque *dum* vestris viribus *restititistis*, neque *dum* auxilia a Romanis sperastis, pacis umquam apud vos mentionem feci. *Postquam* nec ab Romanis vobis ulla *est* spes, nec vestra vos iam aut arma aut moenia satis defendunt, pacem adfero ad vos magis necessariam quam aequam. Cuius ita aliqua spes est, si eam, quem ad modum ut victor fert Hannibal, sic vos ut victi audietis et non id, quod amittitur, in damno, cum omnia victoris sint, sed quidquid relinquitur pro munere habituri estis. [Urbem vobis, quam ex magna parte dirutam, *captam* fere totam *habet*, adimit, agros relinquit, locum adsignaturus, in quo novum oppidum aedificetis.]”

How would the meaning be affected by changing *per duos* to a *duobus* ? Explain the case of *aliquid*. Compare *postquam movebant* (A.) with *postquam est* (B.), and explain the force of the tense in each instance. What tense is usually found after *postquam* ? Explain the force of *autem* ; the mood and tense of *habitarent* and *iussisset*. Give the derivation of *praetor* ; what was the nature of the office of the praetor at Rome, and how did the word come to be so used ? Explain the case of *generis*. Translate accurately *ullius alterius*. Explain the use of *vel* here from its probable derivation ; the gender of *ea*. *Dum restititistis* : what tense usually follows *dum* (meaning “while”), and what force does the expression gain by departing from the rule here ? *Captam habet* : of what part of the English verb does this suggest the origin ?

#### SENECA (HERCULES FURENS).

Translate either vss. 362 – 376 or 533 – 549 : —

- 362 LYCUS. Si aeterna semper odia mortales gerant,  
Nec coeptus unquam cedat ex animis furor,  
Sed arma felix teneat, infelix paret :  
365 Nihil relinquent bella ; tum vastis ager  
Squalebit arvis ; subdita tectis face  
Altus sepultas obruet gentes cinis.  
Pacem reduci velle victori expedit,  
Victo necesse est : particeps regno veni !  
370 Sociemur animis ! pignus hoc fidei cape :  
Continge dextram ! — Quid truci vultu siles ?  
MEG. Egone ut parentis sanguine adpersam manum  
Fratrumque gemina caede contingam ? Prius  
Extinguet Ortus, referet Occasus diem,  
375 Pax ante fida nivibus et flammis erit,  
Et Scylla Siculum iunget Ausonio latus.

- 386 . . . . [Quid matres loquar  
 Passas et ausas scelera ? quid geminum nefas,  
 Mixtumque nomen coningis, gnati, patris ?  
 Quid bina fratrum castra ? quid totidem rogos ?
- 390 Riget superba Tantalus luctu parens,  
 Moestusque Phrygio manat in Sipyllo lapis.  
 Quin ipse, torvum subrigens crista caput,  
 Illyria Cadmus regna permensus fuga,  
 Longas reliquit corporis tracti notas.]
- 533 Intravit Scythiae multivagas domos,  
 Et gentes patriis sedibus hospitas ;
- 535 Calcavitque freti terga rigentia,  
 Et mutis tacitum littoribus mare.  
 Illic dura carent aequora fluctibus ;  
 Et qua plena rates carbasa tenderant,  
 Intonsis teritur semita Sarmatis.
- 540 Stat pontus vicibus mobilis annuis,  
 Navem nunc facilis, nunc equitem, pati.  
 Illic, quae viduis gentibus imperat,  
 Aurato religans ilia balteo,  
 Detrahit spoliū nobile corpori
- 545 Et peltam et nivei vincula pectoris,  
 Victorem posito suspiciens genu.  
 Qua spe praecipites actus ad Inferos,  
 Audax ire vias irremeabiles,  
 Vidisti Siculae regna Proserpinae ?

Show how the metre determines the meaning of *paret* (364) and of *reduci* (368). What is the derivation of *arva* (366), and what is the difference between *arva* and *ager* ? What would *regno* (369) be in prose ? Explain the construction of the clause *egone ut . . . contingam* (372). What would *Fratrum gemina caede* (373) be in prose ? Explain the mythological allusions in vss. 386–394. How is the *g* in *gnati* (388) accounted for ? Explain the case of *Sarmatis* (539). Comment on the use of *facilis*, and construction of *pati* (541). Explain the case of *vias* (548). Who is referred to in vss. 542–546 ? Why is Proserpina called *Sicula* (549) ?

Where did Seneca obtain the plot of *Hercules Furens* ? State two important changes that he introduced, and show how one of these improved the original plot. How old were Livy and Seneca respectively when Augustus died ? How long did each live after that date ? In what year and at what age did Seneca die, and what was the manner of his death ?

#### LATIN COMPOSITION.

Translate into Latin :—

FOR SECTION A. — It would be disgraceful, the sailors said, not to help a man who had saved Italy, and therefore they would not give him up. But the horsemen had hardly gone when they changed their minds, and, bringing their ship to land, set Marius on shore and sailed away as fast as they could. In this situation, deserted by everybody, he still found a friend. An old man who lived in the marshes first received him in his house, and afterwards, hearing that he was pursued by his enemies, led him to a hole near the river, and, bidding him lie down in it, covered

him with such things as would hide him without pressing upon him too heavily. Here he would have escaped the search of his pursuers; but, thinking that he was not sufficiently concealed, he rose from his hiding-place and was captured.

FOR SECTION B. — He congratulated me on my great influence with Caesar.

He is not the only man who thinks the soul and body perish together. Is the number of the stars too great to be estimated?

Cicero says that if his advice had prevailed the republic would not have lost so many leaders.

Hamilcar conducts himself as if he were contemplating a greater war than the one he is now waging; if he should live long enough, he will lead the Carthaginians into Italy.

This weapon causes very great fear, even if it sticks in the shield and does not penetrate to the body, because the flame it carries compels the enemy to throw down his arms.

#### CICERO AND HORACE.

(Final Examination, June, 1872.)

#### CICERO (DE SENECTUTE).

Translate: XI. 37, 38, *Quatuor robustos filios . . commemoro vesperi*. Indicate any place in Horace where Cato the Elder is alluded to. Point out in this treatise the Romans who won the chief victories in the wars alluded to in Horace, Odes II. xii. 1–4. *Sumpserat*, XIII. 45: Discuss the meaning and conjugation of the verb from which this is made, and of its other compounds. Why does Cicero bring in *Ahala* in XVI. 56?

#### HORACE (ODES AND CARMEN SAECULARE).

a. — Translate: (1) I. xvi. 17–28; (2) II. xii. 13–28; (3) III. iii. 37–52; (4) *Carm. Saec.* 37–48.

Grammar. — (1) Formation and meaning of *infectum* (III. xxix. 47) as opposed to *inficet* (III. xiii. 6). What declension are the names in I. xxxv. 40? (2) Write as a dependent sentence the participial phrase in III. v. 3, 4. (3) Explain syntax of *beatior* (III. xvi. 32). Give the various constructions used after *interest* (*intersum*). (4) Peculiarities in *fugaces* (II. i. 19); of construction in III. xix. 9, 10.

History (any three to be selected). — (1) Battle of the Metaurus. (2) Agrippa. (3) Antony and Cleopatra. (4) Augustus' Offices. (5) A rich Roman's day. (6) Virgil's and Horace's lives and poetic motives contrasted.

Metres. — Divide into feet the following, and name the metres. Show how they differ from Horace's usual treatment of the same:

- (1) Οὐ χρὴ κακοῖσι θυμὸν ἐπιτρέπῃν.  
 Προκύψομεν γὰρ οὐδὲν ἀσάμενοι,  
 ὦ Βύκχι, φάρμακον δ' ἄριστον  
 οἶον ἐνεικαμένους μεθύσθην. — ALCAEUS, *Fragn.* 35.

- (2) *Omnia haec quodcunque feret voluntas  
Caelitum tentare simul parati  
Pauca nuntiate meae puellae.* — CATULLUS XI.

(3) What is the metre of IV. viii.? What metrical reason for marking line 17 as spurious? (4) How does the metre help to settle the translation of III. xvi. 13 and IV. xiv. 35? Explain the metre of I. iv.

*In place of any of the above, you may answer the corresponding questions in the following:*

**β.** — Translate: (1) I. xii. 49–60; (2) II. xvi. 1–16; (3) III. xiv. 13–24; (4) IV. iv. 49–60.

**Grammar.** — (1) Principal parts of *crepuit* (II. xvii. 26); *illitum* (IV. ix. 14). Composition of *occupo* (II. xviii. 6). (2) Write as a dependent sentence the participial phrase in III. i. 25. (3) Show the different force of *iturum* (I. xxxv. 29), *aditure* (II. vi. 1), and *daturus* (IV. ii. 3). Give different constructions possible for *puellae* (IV. xi. 12). (4) Syntax of *fontium* (III. xiii. 13). Use of indicative in II. xvii. 28.

**History.** — (1) Any three years B. C. which Horace names by the consul, and an event in each. (2) Prometheus; Bellerophon; Teucer. What English word from *Vulcanus*, and why? (3) What was Horace's Philosophy? Indicate an ode where it appears. What taste of his times did he specially attack? What was the regular title for the Roman emperors in classical Latin?

**Metres.** — Divide into feet the following stanzas, name the metres, and mark the quantities and ictus: (1) I. xxxvii. 13–16; (2) II. xvi. 33–36; (3) III. vii. 1–4. What peculiarity in the first stanza? in the third variety of metre? (4) What is the metre of IV. x.? How does a knowledge of the metre help to settle the interpretation of II. vii. 21 and III. xix. 20?

**METRES OF SENECA** (for all). — Give the scheme of the Iambic trimeter. What substitutions for the Iambus in the line *Obici feris monstrisque virtutem putas*? What feet are used in anapaestic systems? Name the metre of the following lines, and indicate lines in Horace of the like metrical construction: *Uno tot populi remige transeunt. Deerat hoc solum numero laborum. Quantus Eleum ruit ad Tonantem. Dilecta lege populo.*

## SOPHOMORES.

**Latin I** (see page 57.)

**CICERO (DE AMICITIA AND EPISTULA AD QUINTUM FRATREM).**

(*Special Examination, December, 1871.*)

Section II. do all except No. 3; the rest do all except No. 5.

1. Translate:—

*Quae est enim ista securitas? Specie quidem blanda, sed reapse multis locis repudianda. Neque enim est consentaneum ullam honestam rem actionemve, ne sollicitus sis, aut non suscipere aut susceptam deponere.*

Meaning and derivation of *securitas*? Force of *quidem*? What of the form *reapse*? Force of *neque enim*? Derivation of *honestam*, and how do you account for the change?

## 2. Translate : —

Quis enim aut eum diligat quem metuat, aut eum a quo se metui putet ? *Coluntur* tamen simulatione *dumtaxat* ad tempus. Quod si forte, ut fit plerumque, ceciderint, tum intelligitur quam fuerint inopes amicorum. Quod Tarquinius dixisse ferunt tum exulantem se intellexisse quos fidos amicos habuisset, quos infidos, cum jam *neutris gratiam referre* posset. *Quanquam* miror illa superba et importunitate si quemquam habere potuit.

*Coluntur*, position ? *Dumtaxat*, derivation ? How can *neutris* be used in the plural ? why is it generally limited to the singular, and how does its derivation agree with this use ? *Gratiam referre* : what other words are used with *gratiam* or *gratias*, and with what difference of meaning ? *Quanquam*, force ?

## 3. Translate : —

Quid est enim negoti continere eos quibus praesis, si te *ipse* contineas ? *Id* autem *sit* magnum et difficile *ceteris*, sicut est difficillimum : *tibi* et fuit hoc semper facillimum et vero esse debuit, cujus natura talis est ut etiam sine doctrina *videatur* moderata esse *potuisse* ; ea autem adhibita doctrina est quae vel vitiosissimam naturam excolere *possit*. *Tu* cum pecuniae, cum voluptati, cum omnium rerum cupiditati resistes ut facis, erit, *credo*, periculum ne improbum negotiatorem, paullo cupidiorum publicanum comprimere non possis. *Nam* Graeci quidem *sic* te *ita* viventem intuebuntur ut quendam ex annalium memoria aut etiam de caelo divinum hominem esse in provinciam delapsum putent.

*Iipse*, why not *ipsum* ? *Sit*, why subjunctive ? Position of *tibi* ? Subject of *videatur*, and why is not the clause the subject ? Explain construction of *potuisse*. What can you say of the use of *credo* in such cases as this ? What connection of thought is supplied in *nam* ? To what do *sic* and *ita* refer respectively ? What were the respective occasions of writing the compositions of which the above are extracts ? How is the subject of the first divided ? Against what views and whose does Cicero defend friendship ?

4. Translate *quorsum haec*, and supply the ellipsis. Derivation of *quorsum* ? Translate *haud sciam, nescio quo pacto, cooptatio transferebatur, veterrima quaeque esse debent suavissima*.

## 5. Translate and explain : —

Sunt igitur firmi et stabiles et constantes eligendi, cujus generis est magna penuria, et judicare difficile est sane nisi expertum ; experiendum est autem in ipsa amicitia ; ita praecurrit amicitia iudicium tollitque experiendi potestatem. Est igitur prudentis sustinere ut currum sic impetum benevolentiae, quo utamur quasi equis tentatis, sic amicitia, aliqua parte periclitatis moribus amicorum. Quidam saepe in parva pecunia perspiciuntur quam sint leves : quidam [autem], quos parva movere non potuit, cognoscuntur in magna. Sin erunt aliqui reperti qui pecuniam praeferre amicitiae sordidum existiment, ubi eos invenimus qui honores, magistratus, imperia, potestates, opes amicitiae non anteponant, ut, cum ex altera parte proposita haec sint, ex altera jus amicitiae, non multo illa malint.

## CICERO AND PLAUTUS.

(Final Examination, June, 1872.)

## I. CICERO (AD Q. FRATREM).

Translate :—

Illa causa *publicanorum* quantam acerbitem afferat sociis intelleximus ex civibus, qui nuper in portoriis Italiae tollendis non tam de portorio quam de nonnullis injuriis portitorum querebantur. Quare non ignoro *quid sociis* accadat in ultimis terris, cum audierim in Italia querelas civium. Hic te ita versari ut et publicanis satisfacias, praesertim publicis male *redemptis*, et socios perire non sinas, divinae cujusdam virtutis esse videtur, id est, tuae. Ac primum Graecis id quod acerbissimum est *quod sunt vectigales* non ita acerbum videri debet, propterea quod sine imperio populi Romani suis institutis per se ipsi ita fuerunt. Nomen autem publicani aspernari non possunt, qui pendere ipsi vectigal sine publicano non potuerunt, quod iis aequaliter Sulla discipserat. . . Simul et illud Asia cogitet nullam a se neque belli externi neque domesticarum discordiarum calamitatem *abfuturum fuisse*, si hoc imperio non teneretur.

Who are meant by *publicani*, and what is their relation to the person here addressed? What peculiar position of words in *quid sociis*, &c.? Comment on the *d* and the *p* in *redemptis*. How does *quod sunt vectigales* differ from *ut sint*, and *esse*? Comment on *abfuturum fuisse*.

## II. CICERO (PRO ROSCIO).

Translate :—

In minimis privatisque rebus etiam negligentia mandati in crimen iudiciumque [infamia] vocatur, propterea quod, si ratione fiat, illum negligere oporteat qui mandarit, non illum qui mandatum receperit : in re tanta, quae publice gesta atque commissa sit, qui non negligentia privatum aliquid commodum laeserit, sed perfidia legationis ipsius *caerimoniam* polluerit maculaque asperserit, qua is tandem poena adficietur aut quo iudicio damnabitur? si hanc ei rem privatim Sex. Roscius mandavisset, ut cum Chrysogono transigeret atque decideret, inque eam rem fidem suam, si quid opus esse putaret, interponeret, illeque sese facturum recepisset, nonne, si ex eo negotio tantulum in rem suam convertisset, damnatus per *arbitrum* et rem restitueret et *honestatem* omnem *amitteret*? *nunc* non hanc ei rem Sex. Roscius sed id quod multo gravius est ipse Sex. Roscius cum fama, vita bonisque omnibus a decurionibus publice [Roscio] mandatus est.

Comment on *caerimoniam*. Comment on *arbitrum*. Explain *honestatem amitteret*. Comment on *nunc*. When and under what circumstances was this oration delivered? What was the charge? How is this passage connected with the argument?

## III. PLAUTUS.

Translate :—

Omñium primum in Póntum advecti ad Arabiam terrám sumus.

CH. Eho,

Án etiam in Ponto Árabias? SY. Est : nón illa ubi tus gígnitur,

Sét ubi apsinthiúm fit ac cunfla gallinácea.

CH. Nímium graphicum hunc núgatore. Sét ego sum insipiéntior,

Qui égo met unde rédeam hunc rogitem, quae égo sciam atque hic nésciat :



Nisi quia lubet experiri quo *evasurust* dénique.

Sét quid ais ? quo inde isti porro ? SY. Si ánimum advortes éloquar :  
Ad caput amnis qui de caelo exóritur sub solió Jovis.

CH. Sub solio Jovis ? SY. Ita dico. CH. E caelo ? SY. Atque e  
medió quidem.

CH. Eho,

An etiam in caelum éscendisti ? SY. *Immo* hóriola advecti sumus  
Úsque aqua advorsá per amnem. CH. An tu étiam vidisti Jovem ?  
SY. Eum alii di isse ad villam *aibant* sérvis deproptúm cibum.

How is this passage connected with the plot ? *Sciam* : why not *nove-  
rim* ? Comment on *evasurust*. Force of *immo* ? What of the form  
*aibant* ? What can you say of the Latin infinitive and supine ? Compare  
etymologically *generis* and *gévous* ; *sit* and *etē* ; *purus* and *puto* ; *plenus*,  
*completus*, and *plerique*. What is the metre of the above passage ? Divide  
one line into feet. State some peculiarities of Plautus' prosody.

## Latin II. (see page 57.)

### CICERO (TUSCULAN DISPUTATIONS).

(*Special Examination, December, 1871.*)

Translate : —

*Ut* porro firmissimum hoc afferri videtur, cur deos esse credamus, quod  
nulla gens tam fera, nemo omnium tam sit immanis, cujus mentem non  
*imbuerit* deorum opinio : — multi de diis prava sentiunt (id enim vitioso  
more effici solet) ; omnes tamen esse vim et naturam divinam arbitrantur ;  
nec vero id collocutio hominum aut consensus effecit ; non institutis  
opinio est confirmata, non legibus ; omni autem in re consensus omnium  
gentium lex naturae putanda est ; — quis est igitur, qui suorum mortem  
primum non eo lugeat, quod eos orbatos vitae commodis arbitretur ?  
*Tolle* hanc *opinionem* ; luctum *sustuleris*.

What is the correlative corresponding to *ut* here ? Meaning of *imbuerit* ?  
What is the sentence *Tolle . . sustuleris* equivalent to ? *Opinionem* :  
what opinion is meant ? What is the argument of this passage, and how  
is it connected with the main subject ?

Not to be translated, but answer the questions : —

Etenim si nunc aliquid assequi se putant, qui *ostium Ponti* viderunt et  
eas angustias, per quas penetravit ea, quae est nominata Argo, quia Ar-  
givi in ea,

*delecti viri,*

*Vecti, petebant pellem inauratam arietis ;*

aut ii, qui *Oceani freta* illa viderunt,

*Europam Libyamque rapax ubi dividit unda :*

quod tandem spectaculum fore putamus, quum totam terram contueri  
licebit ejusque quum si tum, formam, circumscriptionem, *tum et habita-  
biles* regiones, et rursum omni cultu propter vim frigoris aut caloris  
vacantes ?

What is meant by *ostium Ponti* ? by *Oceani freta* ? What is the argu-  
ment of this passage, and how connected with the rest ? What are the

metres of the two quotations, and what do these metres consist of respectively? What view of the figure of the earth is implied in the last words from *tum et habitabiles*?

Translate (if you have not time, omit the translation, but answer the questions):—

Quam me delectat Theramenes! quam elato animo est! Etsi enim flemus, quum legimus, tamen non miserabiliter vir clarus emoritur. Qui, quum, conjectus in carcerem triginta jussu tyrannorum, venenum ut sitiens obduxisset, reliquum sic e poculo ejecit, ut id resonaret; quo sonitu reddito, arridens, *Propino*, inquit, *hoc pulchro Critiae*, qui in eum fuerat taeterrimus. Graeci enim in conviviis solent nominare, cui poculum tradituri sint. Lusit vir egregius extremo spiritu, quum jam praecordiis conceptam mortem contineret; vereque ei, cui venenum praebibat, mortem est eam *auguratus*, quae brevi consecuta est. Quis hanc animi maximi aequitatem in ipsa morte laudaret, si mortem malum judicaret?

How is this passage connected with the main subject? Under what two aspects does Cicero treat his subject in this treatise? What connection has this double view with Cicero's philosophical opinions? What is the exact meaning of *propino*? What is meant by *auguratus*? To what act of Theramenes does it refer, and how was that act an *augurium*? How was the *augurium* fulfilled?

#### SATIRES OF HORACE (Book I.).

(*Special Examination, March, 1872.*)

Translate:—

Quis paria esse fere placuit peccata, laborant  
Cum ventum *ad verum* est; sensus moresque repugnant  
Atque ipsa *utilitas*, justī prope mater et aequi.  
Cum prorepserunt primis animalia terris,  
Mutum et turpe pecus, glandem atque cubilia propter  
Unguibus et pugnīs, dein fustibus, atque ita porro  
Pugnabant armīs, quae post fabricaverat usus,  
Donec verba, quibus voces sensusque notarent,  
Nominaque invenere; dehinc absistere bello,  
Oppida coeperunt munire et ponere leges,  
Ne quis fur esset, neu latro, neu quis adulter.

Jura inventa metu injusti fateare necesse est,  
Tempora si *fastosque* velis evolvere mundi.

... *ut ferula caedas* meritum majora subire  
Verbera, non vereor, cum dicas esse pares res  
Furta latrocinii, et magnis parva minis  
Falce recisurum simili te, si tibi regnum  
Permittant homines. Si dives qui sapiens est,  
Et sutor bonus et solus formosus et est rex,  
*Cur optas quod habes?* "*Non nosti quid pater,*" inquit,  
"Chrysippus dicat: 'Sapiens creptas sibi numquam  
Nec soleas fecit, sutor tamen est sapiens.'"

Who are meant by *quis*? What is meant by *ad verum*? What has *utilitas* to do with the matter? What connection has the fourth and following lines with the general argument? Explain *fastos*. What grammatical difficulty in *ut caedas*? Explain *cur optas quod habes*. How does *non nosti*, &c., answer the previous question? What two sects of philosophers are alluded to in this passage, and what tenets of theirs respectively?

Not to be translated:—

*Eupolis atque Cratinus Aristophanesque poëtae.*

Who are these persons, and what is their relation to Horace?

*Hinc omnis pendet Lucilius.*

Explain what this means.

His, ego quae nunc  
Olim quae scripsit Lucilius, eripias si  
Tempora certa modosque, et quod prius ordine verbum est  
Posterius facias, praeponens ultima primis.  
Non, ut si solvas "*Postquam Discordia taetra  
Belli ferratos postes portasque refregit,*"  
Invenias etiam disjecti membra poëtae.

Explain the meaning.

Deinde eo dormitum, *non sollicitus*, mihi quod cras  
Surgendum sit mane, *obeundus Marsya*, qui se  
*Voltum ferre* negat Noviorum posse minoris.

*Non sollicitus*: why not? *Obeundus Marsya*: meaning? *Voltum ferre*: meaning?

*Peream male*, si non optimum erat.

Explain the protasis and apodosis.

## CICERO AND HORACE.

(Final Examination, June, 1872.)

### I. CICERO (TUSCULAN DISPUTATIONS).

Translate:—

Sed quid ego Socratem aut Theramenem, praestantes viros virtutis et sapientiae gloria, commemoro? cum Lacedaemonius quidam, cujus ne nomen quidem proditum est, mortem tanto opere contempserit, ut cum ad eam duceretur, damnatus ab Ephoris, et esset vultu hilari atque laeto, dixissetque ei quidam inimicus, *Contemnisme leges Lycurgi?* responderit, *Ego vero illi maximam gratiam habeo, qui me ea poena multaverit, quam sine mutatione et sine versura possem dissolvere.* . . Sed quid duces et principes nominem, cum legiones scribat Cato saepe alacres in eum locum profectas, unde redituras se non arbitrarentur? . . Viros commemoro. Qualis tandem Lacaena? quae cum filium in praelium misisset, et interfectum audisset, *Idcirco*, inquit, *genueram, ut esset, qui pro patria morte non dubitaret occumbere.*

Explain the order in which he mentions these examples. Give a sketch of the argument of this essay. How is this passage connected with it?

## II. CICERO (DE ORATORE).

Translate :—

Tum Catulus: quo ista maiora ac mirabiliora fecisti, eo me maior expectatio tenet quibusnam rationibus quibusque praeceptis ea tanta vis comparetur; non quo mea quidem *iam* intersit, — neque enim aetas id mea desiderat et aliud genus quoddam dicendi nos secuti sumus, qui numquam sententias de manibus iudicum vi quadam orationis extorsimus ac potius placatis eorum animis tantum, quantum ipsi patiebantur accepimus, — sed tamen ista tua nullum ad usum meum, tantum cognoscendi studio adductus requiro; nec mihi opus est Graeco aliquo doctore, qui mihi pervulgata praecepta decantet, cum ipse numquam forum, numquam ullum iudicium aspexerit.

“Ego vero,” inquit ille, “quoniam *conlectam* a conviva, Crasse, exiges, non committam, ut, si defugerim, causam aliquam recusandi tibi dem, quamquam soleo saepe mirari eorum impudentiam, qui agunt in scena gestum spectante *Roscio*; quis enim sese commovere potest, cuius ille vitia non videat? sic ego nunc, Crasso audiente, primum loquar de facetiis et docebo *sus*, ut aiunt, oratorem eum, quem cum Catulus nuper audisset, fenum alios aiebat esse oportere.” Tum ille iocabatur, inquit Catulus, praesertim cum ita dicat ipse, ut ambrosia alendus esse videatur.

Force of *iam*? Comment on *conlectam*. Comment on *sus*; on *Roscio*.

## III. SATIRES OF HORACE (BOOK I.)

Translate :—

“Maecenas quomodo tecum?”

Hinc repetit; “paucorum hominum et mentis bene sanae;

Nemo dexterius fortuna est usus. Haberes

Magnum adiutorem, posset qui ferre *secundas*,

*Hunc* hominem velles si tradere; *dispeream*, ni

*Summos* omnes.” “Non isto vivimus illic,

Quo tu rere, modo; domus hac nec purior ulla est

Nec magis his aliena malis; nil mi officit,” inquam,

“Ditior hic aut est quia doctior; est locus uni

Cuique suus.” “Magnum narras, vix credibile!” “Atqui

Sic habet.” “Accendis, quare cupiam magis illi

Proximus esse.” “Velis tantummodo: quae tua virtus,

Expugnabis; et est qui vinci possit, eoque

Difficiles aditus primos habet.” “Haud mihi deero:

Muneribus servos corrumpam; non, hodie si

Exclusus fuero, desistam; tempora quaeram,

Ocurrant in triviis, *deducam*.”

*Secundas*: supply the ellipsis. *Hunc*: meaning here? *Dispeream ni summos*: explain the protasis and apodosis. Comment on *deducam*. Explain the meaning of this passage briefly in your own language.

## JUNIORS (see page 58).

(Final Examination, June, 1872.)

I. Give the history of the *geminatio vocalium* ; of the *apex* ; of the *geminatio consonantium* ; of the *aspiratio consonantium*. Into what letter did medial *s* pass, and at what time ?

II. Define *barbarismus*. Its earlier name ? Its opposite ? Define *soloeecismus*. The difference between *sententia* and *chria* ? Give the *genera chriarum*.

III. Give etymology of *Gaius* ; of *capsis* with Cicero's mistake ; of *Lupercalia* and *Solitaurilia* (the false and the true) ; of *Latium* and *Italia* (of latter Greek, Latin, and Oscan illustrations) ; of *Beneventum* ; of *Saranus* (showing impossibility of *serere* and "*Saranum*" [?]) ; of *Ditis* ; of *stella* ; of *bipennis* ; of *Opiter*. What Roman followed the antiphrastic method of derivation ? e. g. *pituita*. What was the dispute between the Analogists and Anomalists ?

IV. A brief account of the changed method of education and the social and political causes which led to the decline of eloquence. With whom and when does the Old School end ?

V. Translate : —

1. Haec igitur professio, cum brevissime in duas partis dividatur, recte loquendi scientiam et poetarum enarrationem, plus habet in recessu quam fronte promittit. Nam et scribendi ratio coniuncta cum loquendo est, et enarrationem praecedat emendata lectio, et mixtum his omnibus iudicium est : quo quidem ita severe sunt, uti veteres grammatici, ut non versus modo censoria quadam virgula notare et libros, qui falso viderentur inscripti, tamquam subditos submovere familia permiserint sibi, sed auctores alios in ordinem redegerint, alios omnino exemerint numero.

2. Prima castrorum rudimenta in Britannia Suetonio Paulino adprobavit, electus quem contubernio aestimaret. Nec Agricola licenter, more iuvenum qui militiam in lasciviam vertunt, neque segniter ad voluptates et commeatus titulum tribunatus et inscitiam rettulit : sed noscere provinciam, nosci exercitui, discere a peritis, sequi optimos, simulque anxius et intentus agere.

3. Quinque dies tibi pollicitus me rure futurum  
Sextilem totum mendax desideror. Atqui,  
Si me vivere vis sanum recteque valentem,  
Quam mihi das aegro, dabis aegrotare timenti,  
Maecenas, veniam, dum ficus prima calorque  
Designatorem decorat lictoribus atris  
Dum pueris omnis pater et matercula pallet,  
Officiosaque sedulitas et opella forensis  
Adducit febres et testamenta resignat.

## SENIORS (see page 61).

(Final Examination, June, 1872.)

## I. Translate, interpret, and give the metres :—

1. Quoi dono lepidum novum libellum  
Arida modo pumice expolitur ?  
Corneli, tibi : namque tu solebas  
Meas esse aliquid putare nugas ;  
Iam tum cum ausus es unus Italorum  
Omne aevum tribus explicare chartis.
2. Soles occidere et redire possunt :  
Nobis, cum semel occidit brevis lux,  
Nox est perpetua una dormienda.
3. Sic tibi bonus ex tua pons libidine fiat,  
In quo vel Salisubiali sacra suscipiantur ;  
Munus hoc mihi maximi da, Colonia, risus.  
Quendam municipem meum de tuo volo ponte  
Ire praecipitem in lutum per caputque pedesque,  
Verum totius ut lacus putidaeque paludis  
Lividissima maximeque est profunda vorago.

## II. Translate and interpret :—

1. Tu licet abiectus Tiberina molliter unda  
Lesbia Mentoreo vina bibas opere,  
Et modo tam celeres mireris currere lintres  
Et modo tam tardas funibus ire rates,  
Et nemus omne satas intendat vertice silvas,  
Urgetur quantis Caucasus arboribus :  
Non tamen ista meo valeant contendere amor :  
Nescit Amor magnis cedere divitiis.  
Nam sive optatam mecum trahit illa quietem  
Seu facili totum ducit amore diem,  
Tum mihi Pactoli veniunt sub tecta liquores  
Et legitur rubris gemma sub aequoribus.

2. CH. Porro etiam ausculta pugnam quam voluit dare.

NI. Etiam quid porro ? hem, accipitrina haec nunc erit.

Deceptus sum : Autoluco hospiti aurum credidi.

CH. Quin tu audi. . . NI. Hem, avidi ingenium hau pernoram hospitibus.

## III. Translate only :—

1. Praeterea per se quodcumque erit, aut faciet quid  
Aut aliis fungi debebit agentibus ipsum  
Aut erit ut possint in eo res esse gerique.  
At facere et fungi sine corpore nulla potest res  
Nec praeberere locum porro nisi inane vacansque.  
Ergo, praeter inane et corpora, tertia per se  
Nulla potest rerum in numero natura relinqui.

2. Neque ego haec eo profero, quo conferenda sint cum hisce, de quibus nunc quaerimus, sed ut illud intellegas, cum apud maiores nostros summi viri clarissimique homines, qui omni tempore ad gubernacula rei publicae sedere debebant, tamen in agris quoque colendis aliquantum operae temporisque consumpserint, ignosci oportere ei homini, qui se fateatur esse rusticum.

## EXAMINATIONS FOR CLASSICAL HONORS.

(May, 1872.)

No previous notice was given to the Candidates for Honors of the authors from which the passages set for translation were to be taken.

## SECOND-YEAR CLASSICAL HONORS.

## I. GREEK TRANSLATION.

1. Translate HOM. II. XVIII. 78—93.

2. Translate :—

Ἐπεὶ δὲ φέγγος ἡλίου κατέφθιτο  
 Καὶ νύξ ἐπῆει, πᾶς ἀνὴρ κώπης ἀναξ  
 Ἐς ναῦν ἐχώρει, πᾶς δ' ὄπλων ἐπιστάτης·  
 Τάξις δὲ τάξιν παρεκάλει νεὼς μακρᾶς· 380  
 Πίλεοι δ' ὡς ἕκαστος ἦν τεταγμένος,  
 Καὶ πάννηχοι δὴ διάπλοον καθίστασαν  
 Ναῶν ἀνακτες πάντα ναυτικὸν λεῶν.  
 Καὶ νύξ ἐχώρει, κοῦ μάλ' Ἑλλήνων στρατὸς  
 Κρυφαῖον ἐκπλουν οὐδαμῇ καθίστατο· 385  
 Ἐπεὶ γε μέντοι λευκόπῳλος ἡμέρα  
 Πᾶσαν κατέσχε γαῖαν εὐφρογῆς ἰδεῖν,  
 Πρῶτον μὲν ἤχη κέλαδος Ἑλλήνων πάρα  
 Μρλητῶν εὐφήμησεν, ὄρθιον δ' ἄμα  
 Ἀντηγάλαξε νησιώτιδος πέτρας 390  
 Ἠχώ· φόβος δὲ πᾶσι βαρβάροις παρήν  
 Γνώμης ἀποσφαλεῖσιν· οὐ γὰρ ὡς φυγῇ  
 Παιῶν ἐφύμνουν σεμνὸν Ἑλλήνες τότε,  
 Ἄλλ' ἐς μάχην ὀρμῶντες εὐψύχῳ θράσει.

ÆSCH. Persæ.

3. Translate HEROD. VIII. 78, 79.

4. Translate :—

KP. Καὶ μὴν, ὦ Σώκратες, φιλήκοος μὲν ἔγωγε καὶ ἡδέως ἂν τι μαθάνοιμι, κινδυνεύω μέντοι κάγω εἶναι τῶν οὐχ ὁμοίων Εὐθυδήμῳ, ἀλλ' ἐκείνῳ, ὃν δὴ καὶ σὺ ἔλεγες, τῶν ἥδιον ἂν ἐξελεγχομένων ὑπὸ τῶν τοιοῦτων λόγων ἢ ἐξελεγχόντων. ἀτὰρ γελοῖον μὲν μοι δοκεῖ εἶναι τὸ νουθετεῖν σε, ὅμως δὲ ἂ γ' ἤκουον ἐθέλω σοι ἀπαγγεῖλαι. τῶν ἀφ' ὑμῶν ἀπίοντων ἴσθ' ὅτι προσελθὼν τίς μοι περιπατοῦντι, ἀνὴρ οἰόμενος πάνυ εἶναι σοφός, τούτων τις τῶν περὶ τοὺς λόγους τοὺς εἰς τὰ δικαστήρια δεινῶν, ὧ Κρίτων, ἔφη, οὐδὲν ἀκροῶ τῶνδε τῶν σοφῶν; Οὐ μὰ τὸν Δία, ἦν δ' ἐγώ· οὐ γὰρ οἷός τ' ἦ προστάς κατακοῦεν ὑπὸ τοῦ δαίμονος. Καὶ μὴν, ἔφη, ἀξίον γ' ἦν ἀκοῦσαι. Τί δέ; ἦν δ' ἐγώ. Ἴνα ἤκουσας ἀνδρῶν διαλεγόμενων, οἱ νῦν σοφώτατοι εἰσι τῶν περὶ τοὺς τοιοῦτους λόγους.

— PLATO. Euthyd. XXX.

II. LATIN TRANSLATION.

1. Translate :—

Attat, Curculio hécclé verba mñhi dedit, quom cògito : 583  
Is mihi anulúm subrupuit. CA. Pérdidistin tu anulúm ?

TH. Ubi nunc Curculiónem inveniam ? CA. In tritico facillume 587  
Vél quingentos cúrculiones pro úno faxo réperies.  
Égo abeo : vale átque salve. TH. Mále vale, male sít tibi.  
Quid ego faciam ? máneam an abeam ? scñin mihi esse os óblitum ?  
Cúpío dare mercédem, qui illunc úbi sít conmonstrét mihi. 590

CURCULIO. (THERAPONTIGONVS.)

CV. Ántiquom póetam audiui scripsisse in tragoédia,  
Múlieres dúas peiores ésse quam unam : rés itast.  
Vérum mulierém peiorem, quam haéc amicast Phaédromi,  
Nón vidi [aut] audiui neque pol díci nec fingí potest :  
Quae [éxtemplo] ubi med hunc habere cóspicatast anulúm, 595  
Rógat unde habeam. "quíd id tu quaeris ?" "quía mi quaesitóst opus."  
Négo me dicere, út eum eriperet, mánun [meam] arripuit mórdicus.  
Vix foras me abrípuí atque ecfugi. ápage ístanc canículam.

PLAUTI, Curculio, Actus V.

583. Attat = "tut, tut." — 584. subrupuit = surripuit. — 587. curculiones = "weevils." faxo = "I'll warrant." — 589. oblitum.

2. Translate :—

Ut sumus in Ponto, ter frigore constitit Hister,  
Facta est Euxini dura ter unda maris.  
At mihi iam videor patria procul esse tot annia,  
Dardana quot Graio Troia sub hoste fuit.  
Stare putes, adeo procedunt tempora tarde, 5  
Et peragit lentis passibus annus iter.  
Nec mihi solstitium quicquam de noctibus aufert,  
Efficit angustos nec mihi bruma dies.  
Scilicet in rebus rerum natura novata est,  
Cumque meis curis omnia longa facit. 10  
An peragunt solitos communia tempora motus,  
Suntque magis vitae tempora dura meae ?  
Quem tenet Euxini mendax cognomine litus,  
Et Scythici vere terra sinistra freti.  
Innumerae circa gentes fera bella minantur, 15  
Quae sibi non rapto vivere turpe putant.

OVIDII, Tristia V. 10.

What is meant by *Pontus* (1) ? Comment on the tense of *sumus* (1), the mood and tense of *putes* (5), on the derivation and meaning of *solstitium* (7) and *bruma* (8). Explain *mendax cognomine* (13).

3. Translate :—

Hoc teneo, hic haereo, iudices, hoc sum contentus uno : omitto ac negligo caetera : sua confessione induatur ac iuguletur necesse est. Qui esset ignorabas : speculatorem esse suspicabare : non quaero qua suspicione, tua te accuso oratione : civem Romanum se esse dicebat. Si tu apud Per-



sas aut in extrema India deprehensus, Verres, ad supplicium ducere, quid aliud clamitares, nisi te civem esse Romanum? et, si tibi ignoto apud ignotos, apud barbaros, apud homines in extremis atque ultimis gentibus positos, nobile et illustre apud omnes nomen civitatis tuae profuisset: ille, quisquis erat, quem tu in crucem rapiebas, qui tibi esset ignotus, quum civem se Romanum esse diceret, apud te praetorem, si non effugium, ne moram quidem mortis mentione atque usurpatione civitatis adsequi potuit? — CICERONIS IN VERREM, LXIV.

Comment on the grammatical construction of *confessione*, *ducere*, *profuisset*, *esset*; compare especially the tense of *ducere* with that of *profuisset*, and the mood of *esset* with that of *rapiebas*.

#### 4. Translate:—

Nunc initia causasque motus Vitelliani expeditam. caeso cum omnibus copiis Iulio Vindice ferox<sup>1</sup> praeda gloriaque exercitus, ut cui<sup>2</sup> sine labore ac periculo ditissimi belli victoria evenisset, expeditionem et aciem, praemia quam stipendia malebat. diu infructuosam et asperam militiam toleraverant ingenio<sup>3</sup> loci caelique et severitate disciplinae, quam in pace inexorabilem discordiae civium resolvunt, paratis utrimque corruptoribus et perfidia impunita. viri, arma, equi ad usum et ad decus supererant. sed ante bellum centurias tantum suas turmasque noverant; exercitus finibus provinciarum discernebantur: tum adversus Vindicem contractae legiones, seque et Gallias expertae, quaerere rursum arma novasque discordias; nec socios, ut olim, sed hostes et victos vocabant. nec deerat pars Galliarum, quae Rhenum accolit, easdem partes secuta ac tum acerrima instigatrix adversum Galbianos;<sup>4</sup> hoc enim nomen fastidito Vindice indiderant. — TACITI, Hist. I. 51.

<sup>1</sup> ferox = "flushed." — <sup>2</sup> ut cui = "since it." — <sup>3</sup> ingenio = natura. — <sup>4</sup> Galbianos = "Galba's people."

### III. GREEK COMPOSITION.

Translate THUCYD. VIII. 11 to διαφυγή ἐπιτηδεῖα.

To be turned into Greek Prose:—

1. After the battle the Corcyreans, having set up a trophy on Leucimna, a promontory of Corcyra, slew the other prisoners they had taken, but kept the Corinthians in bonds. Subsequently, when the Corinthians and their allies, after being vanquished at sea, were gone home, the Corcyreans were masters of the sea in those parts, and sailed to Leucas, a Corinthian colony, and wasted part of the territory, and burnt Cyllene.

2. And having received what he demanded, he set out from a concealed spot, and going forward wherever the precipitous part of the island allowed, and where the Lacedaemonians, being confident that the place was strong, did not keep guard, he got round unperceived by them, though with difficulty, and, suddenly appearing on the summit, astonished them greatly.

IV. LATIN COMPOSITION.

THE BATTLE OF THE LAKE REGILLUS.

Translate into English :—

Referentibus iam pedem ab ea parte Romanis, M. Valerius, Publicolae frater, conspicatus ferocem iuvenem Tarquinium ostendentem se in prima exsulum acie, domestica etiam gloria accensus, ut, cuius familiae decus eiecti reges erant, eiusdem interfecti forent, subdit calcaria equo et Tarquinium infesto spiculo petit. Tarquinius retro in agmen suorum infenso cessit hosti; Valerium temere invectum in exsulum aciem ex transverso quidam adortus transfigit, nec quicquam equitis vulnere equo retardato, moribundus Romanus, labentibus super corpus armis, ad terram defluxit. Dictator Postumius postquam cecidisse talem virum, exsules ferociter citato agmine invehit, suos perculosos cedere animadvertit, cohorti suae, quam delectam manum praesidii causa circa se habebat, dat signum, ut, quem suorum fugientem viderint, pro hoste habeant. — LIVY II. 20.

Translate into Latin :—

Then Marcus Valerius, the brother of Publius, levelled his lance and rode fiercely against Titus Tarquinius, who was the leader of the band of the Tarquini. But Titus drew back and sheltered himself amidst his band, and Marcus rode after him in his fury and plunged into the midst of the enemy, and a Latin ran his lance into his side as he was rushing on; but his horse stayed not in his career till Marcus dropped from him dead upon the ground. Then the Romans feared yet more, and the Tarquini charged yet more vehemently, till Aulus, the leader of the Romans, rode up with his own chosen band; and he bade them level their lances, and slay all whose faces were toward them, whether they were friends or foes. — ARNOLD'S History of Rome, I. 98.

V. GENERAL PAPER.

1. Translate :—

Sin ad bella magis studium, turmasque feroces,  
Aut Alphea rotis praelabi flumina Pisae, 180  
Et Jovis in luco currus agitare volantes;  
Primus equi labor est, animos atque arma videre  
Bellantum, lituosque pati, tractuque gementem  
Ferre rotam, et stabulo fraenos audire sonantes;  
Tum magis atque magis blandis gaudere magistri 185  
Laudibus, et plausae sonitum cervicis amare.  
Atque haec jam primo depulsus ab ubere matris  
Audeat, inque vicem det mollibus ora capistris  
Invalidus, etiamque tremens, etiam inscius aevi.

VIRG. Georg. III.

184. *stabulo*: discuss the termination; what of the quantity of the *a*?  
— 188. *audeat*, MSS. *audiat*. Ladewig proposes *gaudeat*; what in that case would be the syntax of *haec*?

2. Translate :—

Ἡμεῖς ὁ ἄνθρωπος Ἀθηναῖοι Χαρίδημον ἐποίησάμεθα πόλιν, καὶ διὰ τῆς δωρεᾶς ταύτης μετεδώκαμεν αὐτῷ καὶ ἱερῶν καὶ ὁσίων καὶ νομίμων καὶ πάντων  
9\*

δωσαν περ αὐτοῖς μέτεσθιν ἡμῖν. πολλὰ μὲν δὴ παρ' ἡμῖν ἐστὶ τοιαῦτα οἷα σὺχ' ἐτέρωθι, ἐν δ' οὖν ἰδιώτατον πάντων καὶ σεμνότατον, τὸ ἐν Ἀρείῳ πάγῳ δικαστήριον, ὑπὲρ οὗ τοσαῦτ' ἔστιν εἰπεῖν καλὰ παραδεδομένα καὶ μυθώδη, καὶ ὧν αὐτοὶ μάρτυρες ἔσμεν, ὅσα περὶ οὐδενὸς ἄλλου δικαστηρίου. ὧν ὥσπερ δειγματος ἕνεκα ἀξιῶν ἔστω ἐν ἡ δὺς ἀκοῦσαι. τοῦτο μὲν τοίνυν τὰ παλαιὰ, ὡς ἡμῖν ἀκούειν παραδέδοται, ἐν μόνῳ τούτῳ τῷ δικαστηρίῳ δίκας φόνου θεοὶ καὶ δοῦναι καὶ λαβεῖν ἤξιωσαν καὶ δικασταὶ γενέσθαι διενεχθεῖσιν ἀλλήλοις, ὡς λόγος, λαβεῖν μὲν Ποσειδῶν ὑπὲρ Ἀλirroθίου τοῦ υἱοῦ παρ' Ἀρεως, δικάσαι δὲ Εὐμένει καὶ Ὀρέστη οἱ δώδεκα θεοί. καὶ τὰ μὲν δὴ παλαιὰ ταῦτα, τὰ δ' ὅστερον, τοῦτο μόνον τὸ δικαστήριον οὐχὶ τύραννος, οὐκ ὀλιγαρχία, οὐ δημοκρατία τὰς φονικὰς δίκας ἀφελέσθαι τετόλμηκεν, ἀλλὰ πάντες ἀσθενέστεροι ἂν τὸ δίκαιον εὔρειν ἡγοῦνται περὶ τούτων αὐτοὶ τοῦ παρὰ τούτοις εὐρημένοι δικαίου. πρὸς δὲ τούτοις τοιοῦτοις οὖσιν, ἐνταυθοὶ μόνον οὐδεὶς πώποτε οὔτε φεύγων ἀλούς οὔτε διώκων ἡττηθεὶς ἐξήλεγκεν ὡς ἀδίκως ἐδικάσθη τὰ κριθέντα. — DEM. Aristocr., §§ 65, 66.

3. Translate accurately : —

Etsi duo milia ducentos milites occidisse constat, Fulvii tamen jam reliquos ducentis et viri Hannibalis vires experti consilium optimum fuisse apparet; Romano victoriae experti et ob eam causam parum dicto parenti, aliquot milia decedendum; ne Poenus, gloria parta haud parentis indigna, seu castra obsidendo, sive insidias struendo omnes occidere pararet.

4. Translate accurately : οὗτ' ἂν δυνάμην μήτ' ἐπιστάμην λέγειν. — SOPH. Ant. 686.

5. Enumerate and explain the various constructions admitted after the conjunction πρίν.

6. Explain the infinitive in τίνας οὖν εὐχὰς ὑπολαμβάνει' εἴχεσθαι τὸν Φίλιππον δὲ ἔσπευδεν; — DEM. F. L. 381. 10.

7. Explain the accusative in πληγὴν τύπτεται βαρυτάτην.

8. Give the difference in meaning between διὰ and κατὰ with the genitive and with the accusative.

9. Fill out the abridged words and translate accurately : Laodiceam veni prid. Kal. Sext.

10. Translate, explaining the force of the cases : —

Ite sacris; properate sacris; laurumque capillis  
Ponite. — OV. Metam.

## FINAL CLASSICAL HONORS.

Each candidate, besides passing on the following five papers, passed also the regular examinations in three of the classical courses open to Seniors and Juniors, — the whole written examination for final Honors in the Classics thus occupying twenty-four hours.

### I. GREEK TRANSLATION.

1. Translate EURIP. Hippolyt., vss. 433–450, δέσποινα, ἐμοί . . χθόν' ἔκγονοι, and vss. 848–855, εἰλικες, εἰλικες, . . φρίσσω πάλοι.

2. Translate PLAT. Menon., from p. 99 C to the end : *Οόκοον, ὦ Μένων, . . ὀνήσεις.*

3. Translate *either* ARISTOT. Politic. III. 13, from *Πολίτης δέ* (§ 13) through *πλωτήρων* (§ 16), or THUCYD. VIII. 65 (*οἱ δ' ἀμφί*), and 66 through *ἀγνωσίαν οὐκ εἶχον.*

4. Translate HOM. H. XVIII., vss. 78–93, *Τὴν δὲ βαρὺ στενάχων . . ἀποτίσῃ.*

## II., III., IV.

The same papers were set in Latin Translation and in Greek and Latin Composition which were set for Second-Year Classical Honors (see pp. 137–139).

## V. GENERAL PAPER.

1. Translate VIRG. Georg. III. 179–189 (see p. 139).

184. *stabulo* : discuss the termination ; what of the quantity of the *a* ? — 188. *audeat*, MSS. *audiat*. Ladewig proposes *gaudeat* ; what in that case would be the syntax of *haec* ?

2. Translate DEMOSTH. Aristocr., §§ 65, 66 (see p. 139) : *Ἡμεῖς ὦ ἄνδρες Ἀθηναῖοι . . ἐδικάσθη τὰ κριθέντα.*

3. Translate accurately : —

*Etsi duo milia ducentos milites occidisse constat, Fulvii tamen jam reliquos ducentis et viri Hannibalis vires experti consilium optimum fuisse apparet ; Romano victoriae experti et ob eam causam parum dicto parenti, aliquot milia decedendum ; ne Poenus, gloria parta haud parentis indigna, seu castra obsidendo, sive insidias struendo omnes occidere pararet.*

4. Translate accurately : *οὐτ' ἂν δυναίμην μήτ' ἐπισταίμην λέγειν.* — SOPH. Ant. 686.

5. Enumerate and explain the various constructions admitted after the conjunction *πρίν*.

6. When does the conjunction *ὅπως* regularly take the subjunctive, and when the future indicative ? What classes of exceptions occur ?

7. Explain *οὐ μὴ λαλήσεις ἀλλ' ἀκολουθήσεις ἐμοί* (ARIST. Nub. 505). Compare this with expressions like *οὐ μὴ γένηται τοῦτο*.

8. Translate *ἄλλο τι μείζον ἐπιταχθήσεσθε* (THUCYD. I. 140), and explain the accusative.

9. Fill out the abridged words and translate accurately : *Laodiceam veni prid. Kal. Sext.*

10. Translate, explaining the force of the cases : —

*Ite sacris ; properate sacris ; laurumque capillis  
Ponite.* — OY. Metam.

## II. MODERN LANGUAGES.

## ENGLISH.

## JUNIORS (see page 59).

*(Special Examination, February, 1872.)*

1. What are the eight main branches of the Indo-European family of languages? What are the subdivisions of the branch to which English belongs? Divide the history of the English language, down to 1550, into four periods, giving approximate dates, and the most important literary monuments.

2. Describe and exemplify the Progression of Mutes in the Indo-European languages. Describe and exemplify *Ablaut* and *Umlaut* in the Teutonic languages.

3. What are the languages which, by contact or otherwise, have most affected English, and to what extent and in what way has this influence been exercised? What losses has English suffered in passing from the Anglo-Saxon to the modern stage?

4. What kinds of words, speaking broadly, do we owe to Anglo-Saxon? What kinds to Latin?

5. Of the whole number of words in a modern dictionary what proportion is of Saxon origin? What is the proportion of Anglo-Saxon in the *total vocabulary* of the *Ormulum*; the English Bible; Shakespeare; Milton? What is the proportion of Saxon words (including repetitions) in the language actually employed by Chaucer; in the Bible; by Shakespeare; by Milton? Again, by Johnson, Hume, and Gibbon?

6. Show how the progress of the useful arts has caused whole classes of words to drop out of use.

7. What advantages has a homogeneous tongue, like the German? Point out the advantage which the English has over the German in respect to certain technical terms.

8. How does English compare with other languages in regard to the number of rhymes? What is the principle of Anglo-Saxon versification? Describe half-rhyme, assonance, line-rhyme. Give an imitative specimen, or a description, of the most complex Icelandic versification.

9. Give the Anglo-Saxon inflections of nouns; the Semi-Saxon; the Early English. Give the inflections of the verb *to help* in each of the three periods.

10. Give a brief view of English inflection at the time of Chaucer.

(*Final Examination, June, 1872.*)

1. How many Cases, and what, had the primitive Indo-European noun? How many remain in Anglo-Saxon? How many Voices had the Indo-European verb; the Gothic; the Anglo-Saxon? How is the Passive Voice formed in Anglo-Saxon; in German; in French; in English?

2. Give some account of the most noticeable productions in English literature from 1350 to 1550.

3. How far can a nation's moral and intellectual character be inferred from its vocabulary?

4. What are Marsh's objections to a new translation of the Bible into English?

5. Give the history of the form *its*. Discuss the expression: *The house is being built*.

6. Write the forms expressing the future (*pure and simple*) of *die*; first, categorically; secondly, interrogatively; thirdly, when following *I think, you think, he thinks*, respectively.

7. What are the three conditions of Pure English? What is the standard of Purity, stated accurately and fully?

8. To what authority would you appeal in a question of pronunciation? What standard have dictionary-makers professed to follow, — say, Walker, Smart, Worcester? State the difficulties in the way of ascertaining the actual use even of an individual. What would be the effect, as to pronunciation, of introducing phonetic spelling?

9. What is the basis of our so-called Standard Spelling?

10. Give the most important facts in Shakespeare's life. Give a list of his works. What plays, printed as Shakespeare's, are of doubtful authenticity?

11. Give a general view of the differences between Elizabethan and modern English? What differences (in Shakespeare) in the inflection of Verbs in the Present Indicative; in the Past Participle of Regular Verbs; in the use of adjectives in *-ive* and *-ble*?

12. Make such comment as is necessary on the passages following, suggesting other readings when desirable:—

Thus ornament is but the guiled shore  
To a most dangerous sea.

The best-condition'd and unwearied spirit  
In doing courtesies.

like one  
Who having unto truth, by telling of it,  
Made such a sinner of his memory,  
To credit his own lie — he did believe, &c.

Where she, at least, is banished from your eye,  
Who hath cause to wet the grief on 't.

But these sweet thoughts do even refresh my labors,  
Most busy, least when I do it.

Leave not a rack behind.

Aroint thee, witch ! the rump-fed ronyon cries.

My thought, whose murder yet is but fantastical,  
Shakes so my single state of man, that function  
Is smothered in surmise.

if the assassination  
Could trammel up the consequence, and catch  
With his surcease success.

Sleep that knits up the ravell'd sleeve of care.

I will advise you where to plant yourselves,  
Acquaint you with the perfect spy o' the time.

And dare me to the desert with thy sword ;  
If trembling I inhabit then, protest me  
The baby of a girl.

13. Show how the following may (by Shakespeare's usage) be read as lines of ten syllables : —

Let me see, let me see : is not the leaf turned down ?  
To thread the postern of a small needle's eye.  
Neither have I money nor commodity.  
Our grandam earth having this distemperature.  
Is now converted : but now I was the lord.  
If you will tarry, holy pilgrim.  
Her sweet perfections, with one self king.  
Stay, the king hath thrown his warder down.  
Just as you left them, all pris'ners, sir.  
Not in the worst rank of manhood, say 't.  
Fill all thy bones with aches, make thee roar.  
His grace is at Marseilles, to which place.  
Why thy canonized bones, hearsed in death.  
O'erworn, despised, rheumatic, and old.  
Earth gapes, hell burns, fiends roar, saints pray.

## GERMAN.

The German Department was not fully organized last year; consequently only Freshmen and Senior papers are given.

## FRESHMEN (see page 56).

## TRANSLATION AND COMPOSITION.

(Special Examination, March, 1872.)

Both A and B to translate I., II., and III.; IV. is to be referred to in writing the exercises.

I. — Ein denkwürdiges Beispiel solcher Hartherzigkeit gab der junge Colin, der reichste Pächter und Gutsbesitzer in La Napoule, der seine Wein- und Delgärten, Zitronen- und Pomeranzenwälder kaum in einem Tage durchlaufen konnte. Schon dies beweist das natürliche Verderben seines Gemüthes, daß er beinahe sieben und zwanzig Jahre alt war, ohne gefragt zu haben, wozu ein Mädchen erschaffen sei?

II. — Rache ist süß. Die Tochter der Frau Manon hätte dann wohl triumphiren können. Aber Mariette war doch ein gar zu gutes Kind und ihr Herz zu weich. Wenn er schwieg, that's ihr leid. Ward er traurig, verging ihr das Lachen. Entfernte er sich, mochte sie nicht lange bleiben; und war sie zu Hause, weinte sie schönere Thränen der Reue als Magdalena, und hatte doch nicht halb so viel gesündigt.

III. — Sie blieb stehen und zitterte vor Schreck an allen Gliedern. Dann wollte sie wieder zur Hütte heim. Kaum war sie ein paar Schritte zurückgegangen, sah sie sich wieder nach dem Schläfer um, und blieb stehen.

Doch aus der Ferne ließ sich sein Gesicht nicht erkennen. — Jetzt oder nie war ein Geheimniß zu lösen. Sie trippelte leiser der Palme näher. Aber er schien sich zu regen. Nun lief sie wieder zur Hütte.

IV. — Er war's gewesen, der dann hinging und sie mit den Blumen neckte um ihre Reugier zu foltern. Wozu? — Er haßte Mariette. Er betrug sich noch immer in allen Gesellschaften gegen das arme Kind auf unverzeihliche Weise. Er wich aus, wo er konnte; und wo er nicht konnte, betrübte er die fromme Kleine. Gegen alle andern Mädchen von La Napoule war er gesprächiger, freundlicher, gefälliger, als gegen Mariette. Man denke! er hatte sie noch nie zum Tanz aufgefordert, und sie tanzte doch allerliebste.

## SECTION A.

Translate into German: —

<sup>1</sup>Once-upon-a-time there <sup>2</sup>lived in a <sup>3</sup>certain <sup>4</sup>village in <sup>5</sup>France a very <sup>6</sup>charming girl whose <sup>7</sup>name was Mariette. She was loved by Colin, the richest young man in the village. Had Colin not been so <sup>8</sup>bashful he <sup>9</sup>might <sup>10</sup>easily have <sup>11</sup>won Mariette's <sup>12</sup>heart. But he did not <sup>13</sup>dare to <sup>14</sup>tell his <sup>15</sup>love, and in order to <sup>16</sup>conceal it, he acted very <sup>17</sup>unkindly towards the poor child when he saw her. One might think that it would be <sup>18</sup>difficult to win Mariette's heart in this way, but one can <sup>19</sup>never <sup>20</sup>explain the <sup>21</sup>wonderful <sup>22</sup>workings of a young girl's heart. <sup>23</sup>So-then Mariette <sup>24</sup>began to love Colin <sup>25</sup>almost without knowing it. But being very <sup>26</sup>bashful <sup>27</sup>herself, she did not let him <sup>28</sup>notice it, and had it not been for a lucky accident (had a lucky <sup>29</sup>accident not been), they might have been very unhappy. Colin <sup>30</sup>sent a beautiful pitcher to Mariette, without <sup>31</sup>saying from whom it came. The <sup>32</sup>whole <sup>33</sup>history of this pitcher is too <sup>34</sup>long to <sup>35</sup>tell now, the <sup>36</sup>examination being <sup>37</sup>only three <sup>38</sup>hours



long. But it is <sup>37</sup> enough to <sup>38</sup> say, that when Colin <sup>39</sup> accidentally <sup>40</sup> broke the pitcher one day, he was obliged to <sup>41</sup> confess that he had sent it, in order to save himself from punishment (not to be <sup>42</sup> punished).

Thus they <sup>43</sup> found-out that they had long loved <sup>44</sup> each other and they were <sup>45</sup> married the <sup>46</sup> next day.

<sup>1</sup> einmal. — <sup>2</sup> wohnen (reg.). — <sup>3</sup> gewiß. — <sup>4</sup> das Dorf (I. 3). — <sup>5</sup> Frankreich. — <sup>6</sup> reizend. — <sup>7</sup> Name. — <sup>8</sup> schüchtern. — <sup>9</sup> können. — <sup>10</sup> leicht. — <sup>11</sup> gewinnen. — <sup>12</sup> das Herz. — <sup>13</sup> wagen (reg.). — <sup>14</sup> aussprechen (sep. pref.). — <sup>15</sup> die Liebe. — <sup>16</sup> verbergen (insep. pref.). — <sup>17</sup> unartig. — <sup>18</sup> schwer. — <sup>19</sup> nie. — <sup>20</sup> erklären. — <sup>21</sup> wunderbar. — <sup>22</sup> das Dichten und Trachten. — <sup>23</sup> also. — <sup>24</sup> anfangen (sep. pref.). — <sup>25</sup> fast. — <sup>26</sup> selbst. — <sup>27</sup> bemerken. — <sup>28</sup> der Zufall. — <sup>29</sup> schiden (reg.). — <sup>30</sup> ganz. — <sup>31</sup> die Geschichte. — <sup>32</sup> lang. — <sup>33</sup> erzählen. — <sup>34</sup> das Examen. — <sup>35</sup> nur. — <sup>36</sup> die Stunde (II.). — <sup>37</sup> genug. — <sup>38</sup> sagen. — <sup>39</sup> zufällig. — <sup>40</sup> brechen. — <sup>41</sup> gestehen. — <sup>42</sup> strafen (reg.). — <sup>43</sup> entdecken (reg.). — <sup>44</sup> sich. — <sup>45</sup> vermählen (reg.). — <sup>46</sup> nächst.

## SECTION B.

Translate into German : —

On the <sup>1</sup> mountains <sup>2</sup> dwelt an <sup>3</sup> old <sup>4</sup> mountaineer, who had a <sup>5</sup> little <sup>6</sup> daughter. The little one was so <sup>7</sup> pretty, that she <sup>8</sup> looked like a <sup>9</sup> beautiful <sup>10</sup> fairy. <sup>11</sup> Sometimes she was very <sup>12</sup> lonely, <sup>13</sup> for her father <sup>14</sup> went away in order to <sup>15</sup> work the <sup>16</sup> whole day. She <sup>17</sup> feared <sup>18</sup> too the <sup>19</sup> wicked <sup>20</sup> spirits of the mountain ; but, being very good, a good fairy who loved her, <sup>21</sup> protected her <sup>22</sup> against them <sup>23</sup> until her father <sup>24</sup> came back again.

Then in the <sup>25</sup> long <sup>26</sup> evening she <sup>27</sup> sat <sup>28</sup> before the <sup>29</sup> fire <sup>30</sup> beside her father, who <sup>31</sup> told her <sup>32</sup> many <sup>33</sup> fairy-stories, <sup>34</sup> while <sup>35</sup> smoking his long <sup>36</sup> German <sup>37</sup> pipe and <sup>38</sup> drinking his <sup>39</sup> evening-glass (whilst he smoked, &c.).

<sup>1</sup> der Berg (I. 2). — <sup>2</sup> wohnen. — <sup>3</sup> alt. — <sup>4</sup> Bergmann. — <sup>5</sup> klein. — <sup>6</sup> die Tochter. — <sup>7</sup> hübsch. — <sup>8</sup> aussehen (sep. pref.). — <sup>9</sup> schön. — <sup>10</sup> die Fee. — <sup>11</sup> zuweilen. — <sup>12</sup> einsam. — <sup>13</sup> denn. — <sup>14</sup> fortgehen (sep. pref.). — <sup>15</sup> arbeiten. — <sup>16</sup> ganz. — <sup>17</sup> fürchten. — <sup>18</sup> auch. — <sup>19</sup> böse. — <sup>20</sup> Geist (I. 3). — <sup>21</sup> schützen (reg.). — <sup>22</sup> dagegen. — <sup>23</sup> bis. — <sup>24</sup> zurückkommen. — <sup>25</sup> lang. — <sup>26</sup> der Abend. — <sup>27</sup> sitzen. — <sup>28</sup> vor (w. dat.). — <sup>29</sup> das Feuer. — <sup>30</sup> neben (w. dat.). — <sup>31</sup> erzählen (reg.). — <sup>32</sup> viel. — <sup>33</sup> Märchen. — <sup>34</sup> indem. — <sup>35</sup> rauchen (reg.). — <sup>36</sup> deutsch. — <sup>37</sup> die Pfeife. — <sup>38</sup> trinken (irreg.). — <sup>39</sup> das Abendglas.

## TRANSLATION AND COMPOSITION.

(Final Examination, June, 1872.)

## SECTION A.

Translate into English : —

Doch gestehen Sie, Herr Albert, die Aussicht ist nicht angenehm, sie alle nach und nach an Männer geben und aus dem Haus verlieren zu müssen.

Ich verstehe mich darauf, die Leute zu quälen, daß sie froh werden, meiner los zu sein.

In der Einsamkeit meines Zimmers hatte ich aber Langeweile.

Noch nie hatte ich einen Mann seines Alters, der Welt und Lebensart und ein angenehmes Aeußere von der Natur hatte, so empfindlich gegen den Ruchswillen eines hübschen Mädchens gesehen.

Mit kindlicher Vertraulichkeit theilte sie mir alle ihre kleinen Geheimnisse mit ; forderte sie zu Allem, was sie vorhatte, meinen Rath. Selbst über ihren Anzug, und was sie wohl kleide, mußte ich meine Meinung geben.

Ich versicherte ihn, daß mir zu viel daran gelegen wäre, des Vergnügens seiner Gesellschaft zu genießen, als daß ich nicht noch eine Woche zugeben sollte, da mir ohnedem die Ruhe zu meiner kaum hergestellten Gesundheit wohlthätig schiene.

Das Mädchen wäre vielleicht allein fähig gewesen, mich um alle Früchte meiner schmerzlich erworbenen Welt- und Selbstkenntniß zu bringen.

Doch maß ich mir, meiner Uebereilung, meiner Verwirrung die Schuld bei, daß die Gräfin solchen Ton annehmen mußte.

Um einiger verächtlicher Menschen muß man keine Welt verachten.

Ein junger Wundarzt nahm sich meiner mit Vorliebe an, und widersprach fest seinen Vorgesetzten, die behaupteten, ich müsse den Fuß oder das Leben im Stich lassen.

Aber wie lächelnd sie auch und wie lustig scherzend sie die Worte sprach, schien doch dabei, wenn ich mich nicht zu sehr betrog, eine kleine Bitterkeit — nein, nicht Bitterkeit — aber ein leichter Schmerz um ihre holden Lippen zu schweben, den ich mir zum Vortheil gedeutet hätte.

„Nein,“ erwiderte ich, „beweis nur, daß das Bild beider in ihren Zügen allzuverwandten Schönheiten in meinem Gedächtniß zu einem einzigen ward.“

Mich durchschauerte Entzücken bei dieser aus der Tiefe ihrer Seele hervorgehenden Frage, bei diesen Thränen. „O, Annette! soll ich bleiben?“

#### SECTION B.

Translate into English : —

Ich lege mein Kapital nur an Zins, wenn ich die Töchter weggebe.

Ich fuhr erschrocken zusammen.

Noch nie hatte ich einen Mann seines Alters, der Welt und Lebensart und ein angenehmes Aeußere von der Natur hatte, so empfindlich gegen den Muthwillen eines hübschen Mädchens gesehen.

Ich konnte es dem armen Kinde zuletzt nicht abschlagen, da ihm meine Weigerung Thränen auspreßte.

Er setzt' ihn an, er trank ihn aus :

„O Trank voll süßer Labe !

Ergeht's Euch wohl, so denkt an mich.“

Und wie er tritt an des Felsen Gang

Und blickt in den Schlund hinab,

Die Wasser, die sie hinunterschlang,

Die Charybde jetzt brüllend wiedergab.

Und wärf'st du die Krone selber hinein

Und spräch'st : Wer mir bringet die Kron'.

Laß mich die Gründe hören, denen ich selber nachzugröbeln nicht die Zeit gehabt.

Doch wie ? Sollt' er auch wohl die Wahrheit nicht in Wahrheit fordern ? — Zwar, zwar der Verdacht, daß er die Wahrheit nur als Falle brauche, war' auch gar zu klein !

So ganz Stodjude sein zu wollen, geht schon nicht. — Und ganz und gar nicht Jude, geht noch minder.

Das gelingt dem Künstler.

Nun, wessen Treu' und Glauben zieht man denn

Am wenigsten in Zweifel ? Doch der Seinen ?

Doch deren Blut wir sind ? Doch deren, die

Von Kindheit an uns Proben ihrer Liebe

Gegeben ? die uns nie getäuscht, als wo

Getäuscht zu werden uns heilsamer war ?

The German equivalents for most of the words were given on a separate sheet.

### SECTION A.

Translate into German : —

It was on the 4th of May in the year 1653, at half past nine o'clock in the morning, that a wearied traveller appeared in the pretty village of Cransac, whither he had come for the first time. The traveller was a young man of perhaps 27 years, and looked like a captain in the French army. As he alighted from his carriage, it was easy to see that he had been wounded. Without the help of his trusty Thomas, the soldier would scarcely have been able to hobble into the cheerful inn, about the door of which swarmed a host of pretty children. The host and hostess received the wounded hero with many bows, and Fanchon, the host's pretty daughter, was sent to prepare the little corner-room for the guest.

Everything was done in order to make the captain comfortable, and if his wound had not given him great pain, he would have thought himself very happy. It was not long, however, before the cheerfulness of everybody caused Herr von Orny, for such was the guest's name (for so the guest was called), to forget his suffering. The host said : "We are glad that you have come to-day, for this evening there will be dancing in the town-hall, and if you are from the neighborhood, you ought to have heard of my Fanchon, who is said to be the best dancer (*fem.*) in the village."

"Alas," replied Herr von Orny, "I should be only too happy to offer my company to the fair Fanchon, but my wound will not allow me to dance ; I shall be much pleased, however, to be a spectator." Herr von Orny went to the ball, where he enjoyed himself greatly, although he regretted that he had been obliged to decline the dance ; and whoever had seen Fanchon dance, would have been willing to confess that a more graceful dancer had never been seen in all Languedoc. Herr von Orny remained many weeks in Cransac, until his wound was quite healed, when he began to think that if he wished to do his duty, he ought to return to his regiment. One thing, however, bound him to Cransac.

This was the charms of the lovely Fanchon, who had won our hero's heart before he had been a whole day in Cransac. It is useless to tell in-detail the old story of how it all happened ; but, being no less susceptible than (the) most men, Orny soon found it impossible to resist the fascination of Fanchon's beauty, and although, after he had been several weeks in Cransac, his wound, as we have said, was wholly cured, he yet did not wish to leave this lovely village. But his duty obliged him to return to his regiment in Spain, where he remained several years.

When he returned to Cransac, Fanchon had become a beautiful woman ; and our hero, who would not have been able to forget her, even if he had wished it, said to her when he saw her again : "You are even more charming than you were several years ago."

### SECTION B.

Translate into German : —

In the year 1863 there lived in a certain village in France a very charming girl whose name was Mariette. She was loved by Colin, the richest young man in the village. Had Colin not been so bashful, he

might easily have won Mariette's heart. But he did not dare to tell his love, and, in order to conceal it, he acted very unkindly towards the poor child when he saw her. One might think that it would be difficult to win Mariette's heart in this way, but one can never explain the wonderful workings of a young girl's heart. So then Mariette began to love Colin almost without knowing it. But being very bashful herself, she did not let him notice it, and had it not been for a lucky accident (had a lucky accident not been), they might have been very unhappy. Colin sent a beautiful pitcher to Mariette, without saying from whom it came. The whole history of this pitcher is too long to tell now, the examination being only three hours long. But it is enough to say, that when Colin accidentally broke the pitcher one day, he was obliged to confess that he had sent it in order to save himself from punishment (in order not to be punished). Thus they found-out that they had long loved each other, and they were married the next day.

### SENIORS (see page 61).

#### SCHILLER'S WALLENSTEIN.

(*Special Examination, February, 1872.*)

Translate word for word, so far as the idiom of English will allow.

#### I.

- 1 Bruder, den lieben Gott da droben,
- 2 Es können ihn alle zugleich nicht loben.
- 3 Einer will die Sonn', die den Andern beschwert;
- 4 Dieser will's trocken, was Jener feucht begehrt;
- 5 Wo du nur die Noth siehst und die Plag,
- 6 Da scheint mir des Lebens heller Tag;
- 7 Geht's auf Kosten des Bürgers und Bauern,
- 8 Nun, wahrhaftig, sie werden mich dauern;
- 9 Aber ich kann's nicht ändern — seht,
- 10 's ist hier just, wie's bei'm Einbau'n geht:
- 11 Die Pferde schnauben und setzen an,
- 12 Riege, wer will, mitten in der Bahn,
- 13 Sey's mein Bruder, mein leiblicher Sohn,
- 14 Herriß mir die Seele fein zammerton,
- 15 Ueber seinen Leib weg muß ich jagen,
- 16 Kann ihn nicht fachte bei Seite tragen.
- 17 Und weil sich's nun einmal so gemacht,
- 18 Daß das Glück dem Soldaten lacht,
- 19 Laßt's uns mit beiden Händen fassen,
- 20 Lang' werden sie's uns nicht so treiben lassen.
- 21 Der Friede wird kommen über Nacht,
- 22 Der dem Wesen ein Ende macht;
- 23 Der Soldat zäumt ab, der Bauer spannt ein,
- 24 Eh' man's denkt, wird's wieder das Alte seyn.
- 25 Jetzt sind wir noch beisammen im Land,

- 26 Wir haben's Fests noch in der Hand.  
 27 Lassen wir uns auseinander sprengen,  
 28 Werden sie uns den Brodtkorb höher hängen.

Decline : Gott (1), Sohn (13), Friede (21), Wesen (22), Soldat (23), Hand (26). What other masculines are declined like Gott? Give the characteristics of the various classes of Nouns of the First Declension. What Nouns belong to the First Class of that Declension? Give the rules for the Gender of Nouns, as determined by derivation or ending. Give the Imperfect Subjunctive, first Person, of können (2), will (3), siehst (5), geht (7), schmecken (11), liegt (12), tragen (16), lassen (20), denkst (24). What is exceptional in the form geht (7)? Give the Imperative Singular of sehen, gehen, werden, liegen, sein.

## II.

- 1 O schön
- 2 In's L
- 3 Zum fr
- 4 Und he
- 5 Wenn
- 6 Mit gr
- 7 Der S
- 8 Nicht b
- 9 Von V
- 10 Von fr
- 11 Hell kl
- 12 Des bl
- 13 Aus T
- 14 Ein jauchzend Volk, mit liebend emsiger
- 15 Zubringlichkeit des Heeres Fortzug hindernb.
- 16 Da schüttelt, froh des noch erlebten Tags,
- 17 Dem heimgekehrten Sohn der Greis die Hände.
- 18 Ein Fremdling tritt er in sein Eigenthum,
- 19 Das längst verlass'ne, ein; mit breiten Aesten
- 20 Deckt ihn der Baum bei seiner Wiederkehr,
- 21 Der sich zur Gerte bog, als er gegangen,
- 22 Und schamhaft tritt als Jungfrau ihm entgegen,
- 23 Die er einst an der Amme Brust verließ.
- 24 O! glücklich, wem dann auch sich eine Thür,
- 25 Sich zarte Arme sanft umschlingend öffnen!

Conjugate the Verbs in 4, 11, 16, 21. Account for the forms jauchzend and liebend in 14. What is exceptional in tritt (18)? What is the ellipsis in 21, and under what circumstances is this ellipsis allowable?

## III.

- 1 Du schilberst beines Vaters Herz. Wie du's
- 2 Beschreibst, so ist's in seinem Eingeweide,
- 3 In dieses schwarzen Heuchlers Brust gestaltet.
- 4 O mich hat Höllefunkst getäuscht. Mir sandte
- 5 Der Abgrund den verstecktesten der Geister,
- 6 Den lügefundigsten herauf, und stellt' ihn
- 7 Als Freund an meine Seite. Wer vermag
- 8 Der Hölle Macht zu widersteh'n! Ich zog
- 9 Den Basilisken auf an meinem Busen;
- 10 Mit meinem Herzblut nährt' ich ihn, er sog

- 11 Sich schwellend voll an meiner Liebe Brüsten.
- 12 Ich hatte nimmer Arges gegen ihn,
- 13 Weit offen lies ich des Gedankens Thore,
- 14 Und warf die Schlüssel weiser Vorsicht weg.
- 15 Am Sternenhimmel suchten meine Augen,
- 16 Im weiten Weltenraum den Feind, den ich
- 17 Im Herzen meines Herzens eingeschlossen.
- 18 — Wär' ich dem Ferdinand gewesen, was
- 19 Octavio mir war — ich hätt' ihm nie
- 20 Krieg angekündigt — Nie hätt' ich's vermocht.
- 21 Er war mein strenger Herr nur, nicht mein Freund;
- 22 Nicht meiner Treu' vertraute sich der Kaiser.
- 23 Krieg war schon zwischen mir und ihm, als er
- 24 Den Feldherrnstab in meine Hände legte,
- 25 Denn Krieg ist ewig zwischen List und Argwohn,
- 26 Nur zwischen Glauben und Vertrauen ist Friede.
- 27 Wer das Vertrauen vergiftet, o der mordet
- 28 Das werdende Geschlecht im Leib der Mutter!

Give the rule for the Declension of schwarzen in 3; a specimen of each of the two Declensions of Adjectives; all the rules for putting an Adjective into the Second Declension. What verbs are conjugated like sandte (4)? Conjugate the verbs in 7, 8, 10. Show how the Anomalous or Old Verbs may be arranged under three classes, giving also the verbs which cannot be classified.

Give an abstract of the Argument of The Piccolomini and of The Death of Wallenstein. When and where was the Lager first performed?

# SCHILLER'S WALLENSTEIN AND THIRTY YEARS' WAR — GOETHE'S FAUST (PART I).

(Final Examination, June, 1872.)

Translate word for word, so far as the idiom of English will allow.

## Erster Jäger.

- 1 So ritt ich hinüber zu den Liguisten.
- 2 Sie thaten sich just gegen Magdeburg rüsten.
- 3 Ja, das war schon ein ander Ding!
- 4 Alles da lustiger, loser ging,
- 5 Soff und Spiel und Mädels die Menge!
- 6 Wahrhaftig, der Spaß war nicht gering,
- 7 Denn der Tilly verstand sich auf's Commandiren.
- 8 Dem eigenen Körper war er strenge,
- 9 Dem Soldaten lies er Vieles passiren,
- 10 Und ging's nur nicht aus seiner Cassen,
- 11 Sein Spruch war: leben und leben lassen.
- 12 Aber das Glück blieb ihm nicht stät;
- 13 Seit der Leipziger Fatalität
- 14 Wollt' es eben nirgends mehr stecken,
- 15 Alles bei uns gerieth in's Stecken.
- 16 Wo wir erschienen und pochten an,
- 17 Ward nicht begrüßt noch aufgethan,
- 18 Wir mußten uns drücken von Ort zu Ort,
- 19 Der alte Respect war eben fort. —

20 Da nahm ich Handgeld von den Sachsen,  
21 Meinte, da müßte mein Glück recht wachsen.

1. Who were the Siguisten, and to what confederation were they opposed ?  
2. Give some account of the siege of Magdeburg, with the date. 13. Explain the reference to Leipzig. Point out grammatical peculiarities in 2, 3, 5, 8, 10.  
17. What is the force of schon in 3 ? Is Leipziger in 13 a noun or an adjective, and what is its declension ?

1 Da ist der Chef vom Dragoner Corps,  
2 Heißt Butler, wir standen als Gemeine  
3 Noch vor dreißig Jahren bei Eöln am Rheine,  
4 Jetzt nennt man ihn Generalmajor.  
5 Das macht, er thät sich baß hervor,  
6 Thät die Welt mit seinem Kriegeruhm füllen ;  
7 Doch meine Verdienste, die blieben im Stillen.  
8 Ja, und der Friedländer selbst, sieht Er,  
9 Unser Hauptmann und hochgebietender Herr,  
10 Der jetzt Alles vermag und kann,  
11 War erst nur ein schlichter Edelmann,  
12 Und weil er der Kriegsgöttin sich vertraut  
13 Hat er sich diese Größ' erbaut,  
14 Ist nach dem Kaiser der nächste Mann,  
15 Und wer weiß, was er noch erreicht und ermißt,  
16 Denn noch nicht aller Tage Abend ist.

5. Explain the forms thät and baß. 8. Explain the use of Er. Conjugate the verbs in 2, 4, 10, 15. Where is the ellipsis in 12 ?

1 Den Göttern gleich' ich nicht ! Zu tief ist es gefühlt ;  
2 Dem Wurm gleich' ich, der den Staub durchwühlt,  
3 Den, wie er sich im Staube nährend lebt,  
4 Des Wandrers Tritt vernichtet und begräbt.  
5 Ist es nicht Staub, was diese hohe Wand,  
6 Aus hundert Fächern, mir verenget,  
7 Der Trödel, der mit tausendfachem Land,  
8 In dieser Mottenwelt mich bränget ?  
9 Hier soll ich finden, was mir fehlt ?  
10 Soll ich vielleicht in tausend Büchern lesen,  
11 Daß überall die Menschen sich gequält,  
12 Daß hie und da ein Glücklicher gewesen ? —  
13 Was grindest Du mir, hohler Schädel, her,  
14 Als daß dein Hirn, wie meines, einst verwirret,  
15 Den leichten Tag gesucht, und in der Dämm'ung schwer,  
16 Mit Lust nach Wahrheit, jämmerlich geirret !  
17 Ihr Instrumente freilich spottet mein,  
18 Mit Rad und Rämnen, Walz' und Bügel.  
19 Ich stand am Thor, ihr solltet Schlüsseln seyn ;  
20 Zwar euer Bart ist kraus, doch hebt ihr nicht die Kiegel.  
21 Geheimnißvoll am lichten Tag,  
22 Läßt sich Natur des Schleiers nicht berauben,  
23 Und was sie deinem Geist nicht offenbaren mag,  
24 Das zwingst du ihr nicht ab mit Hebeln und mit Schrauben.

5. Decline : diese hohe Wand. What is the Gender of the Nouns in 6 and 10 ? Decline the Pronouns in 19, 20. Explain the construction of sich in 22. Give the principal parts of all the verbs which in conjugation resemble mag (23).

- 1 Ja, unsere Wirthschaft ist nur klein,
- 2 Und doch will sie versehen seyn.
- 3 Wir haben keine Magd; muß kochen, fegen, stricken
- 4 Und näh'n, und laufen früh und spat;
- 5 Und meine Mutter ist in allen Stücken
- 6 So accurat!
- 7 Nicht daß sie just so sehr sich einzuschränken hat;
- 8 Wir können uns weit eh'r als andre regen.
- 9 Mein Vater hinterließ ein hübsch Vermögen,
- 10 Ein Häuschen und ein Gärtchen vor der Stadt.
- 11 Doch hab' ich jetzt so ziemlich stille Lage;
- 12 Mein Bruder ist Soldat,
- 13 Mein Schwesterchen ist todt.
- 14 Ich hatte mit dem Kind wohl meine Noth;
- 15 Doch übernahm' ich gern noch einmal alle Plage,
- 16 So lieb war mir das Kind.

1. When does an Adjective remain uninflected? 2. Point out the use of will here, and give the other occasional meanings which this verb has. 3. What is the third Person Singular of the Present Indicative of laufen? Give all the rules for the modification of the radical vowel in that inflection. Give in detail an abstract of the First Part of Göthe's Faust.

Nach und nach kam es auf, daß ein Privatgerichtshof des Kaisers, der Reichshofrath in Wien — anfänglich zu nichts andern bestimmt als dem Kaiser in Ausübung seiner unbezweifelten persönlichen Kaiserrechte mit Rath an die Hand zu geben — ein Tribunal, dessen Mitglieder, von dem Kaiser allein willkürlich aufgestellt und von ihm allein besoldet, den Vortheil ihres Herrn zu ihrem höchsten Gesetze, und das Beste der katholischen Religion, zu welcher sie sich bekannten, zu ihrer einzigen Richtschnur machen mußten — die höchste Justiz über die Reichsstände ausübte. Von dem Reichshofrath wurden nunmehr viele Rechtshändel zwischen Ständen ungleicher Religion gezogen, über welche zu sprechen nur dem Kammergericht gebührte, und vor Entstehung desselben dem Fürstenrathe gebührt hatte.

Eben so streng gegen seine Truppen, eben so bluthürstig gegen den Feind, von eben so finsterner Gemüthsart als Wallenstein, ließ er diesen an Bescheidenheit und Uneigennützigkeit weit hinter sich zurück. Ein blinder Religionszeifer und ein bluthürstiger Verfolgungsgeist vereinigten sich mit der natürlichen Wildheit seines Charakters, ihn zum Schrecken der Protestanten zu machen. Ein bizarres und schreckhaftes Aeußere entsprach dieser Gemüthsart. Klein, bager, mit eingefallenen Wangen, langer Nase, breiter gerunzelter Stirn, starkem Knebelbart und unten zugespitztem Gesichte, zeigte er sich gewöhnlich in einem spanischen Wamms von hellgrünem Atlas mit ausgefächelten Ärmeln, auf dem Kopfe einen kleinen hoch aufgestutzten Hut, mit einer rothen Straußfeder geziert, die bis auf den Rücken niederwallte.

Write the German for the following: —

1. Let us get up and dress ourselves.
2. He had two houses built for me.
3. You have forgotten what you had promised me.
4. He could not help laughing.
5. Hadst thou been here, my brother had not died.
6. He would certainly be here, if he had wished to come.
7. He ought never to have made the request.
8. He will not let himself be seen.



## FRENCH.

## SPECIMEN PAPERS FOR ADMISSION EXAMINATION.

An examination in the translation of French prose will be held at the beginning of the Freshman year; those students who pass satisfactorily will not be required to study French in the College Course. Those who fail may again present themselves at the time of examination for conditions before the beginning of the Sophomore year.

French cannot be taken as an *elective* by those who have not passed this entrance examination.

French is required only of those who have failed, before the beginning of the Sophomore year, to pass the admission examination in the translation of French prose. Students thus required to study French have two hours a week *in addition* to the other required work of the Sophomore year.

In addition to a few questions from Paper I. (Elementary Grammar), two extracts of easy French prose will be chosen by the examiner for translation. The translation should be as literal as possible, but in good English, rendering French idioms by corresponding English ones, if possible.

Paper II. represents the class of extracts that will be given in future examinations. It is expected that the student should be able to translate at sight easy French prose. A few unusual words or constructions will be explained to him if necessary. A fair knowledge of Elementary Grammar would be an equivalent for some deficiency in translating at sight.

Although no examination is passed in pronunciation, it is recommended that all care and attention possible be devoted to this from the very beginning.

## I.

1. When is the article elided ?
2. Give the principal rules for the formation of the plural in nouns and adjectives.
3. Write the plural of the following : *chapeau, fils, enfant, œil, cheval, pomme, nez, gâteau, feu, fou, royal, bijou, bleu, palais, voix, pays, mon livre, son travail, le ciel, leur mère, monsieur, journal, madame.*
4. Translate into French : to the man ; of the man ; to the woman ; of the woman ; to the men ; of the horse ; to the horse ; of the girl ; to the girl ; of the girls ; some sugar ; any sugar ; some meat ; some men ; any horses ; the girl's mother ; the men's books ; I have sugar and bread ; he has no sugar ; she has no money ; to the child ; of the child ; the boy's father ; the women's books.
5. Give the principal rules for the formation of the feminine of adjectives.
6. Give the feminine of the following adjectives : *grand, fou, utile, premier, petit, sot, heureux, long, nouveau, vieux, blanc, sage, neuf, joli, complet, doux, faux, bas, mauvais, cruel, ancien.*
7. Translate into French : sugar enough ; much sugar ; many men ; how many men ; too many men ; few men ; more men.
8. Explain the words *ce, cet, cette, ces, celui, celle, ceux, celui-ci, celle-là, ceci, cela.*
9. Explain the words *mon, ton, son, notre, votre, leur.*

10. Translate into French : his father and her mother ; her brother and sister ; his chair ; her book ; his pen ; her rose ; a friend of his ; an aunt of hers ; his horses ; her eyes ; his aunts ; her uncles ; her sisters ; his brothers.

11. When are *mon, ton, son* used instead of *ma, ta, sa* ?

12. Write out the numbers 10, 21, 32, 43, 54, 65, 71, 72, 86, 92, 173, 794, 1895, 16277.

13. How are the ordinal numbers formed from the cardinal ?

14. How are the comparative and superlative formed ? Give examples.

15. Give the comparative and superlative of *bon, mauvais, petit, bien, mal, peu*.

16. Give in full the Imperfect and Preterite (Past Definite) Indicative of *avoir* and *être*.

17. Give in full the Present Subjunctive of *avoir* and *être*.

18. Translate into French : we are ; you have ; had ; they are ; he has been ; I shall be ; you will have had ; they would have had ; they will be ; we shall not be ; will he not be ? shouldst thou not have had ? do not be angry (plural) ; thou hast not been ; having ; let us not be angry ; let us have courage ; not being there.

19. What are the terminations of verbs in the Infinitive ?

20. What are the primitive tenses ?

21. What are the derived tenses, and how are they formed from the primitive ?

22. How are the compound tenses formed ?

23. Give a synopsis (1st pers. sing.) of all the simple tenses of *donner*.

24. Give a synopsis (1st pers. sing.) of all the simple tenses of *finir*.

25. Give a synopsis (1st pers. sing.) of all the simple tenses of *vendre*.

26. Give in full the Future and Preterite (Past Definite) Indicative of *donner*.

27. Give in full the Conditional of *vendre*, simple and compound (Present and Past).

28. Give in full the Imperfect Indicative and Subjunctive of *donner* and *finir*.

29. Give the Present and Past Participles of *vendre, bâtir, and battre*.

30. Translate into French : he sells ; let us finish ; you are finishing ; let us give ; they will sell ; he would finish ; not to give ; we are finishing ; do not sell ; they give ; they finish.

31. Translate into English : *finissez, donnez, ayant vendu, il faut que vous finissiez, il faut que vous vendiez, ne me donne pas, ne m'a-t-il pas vendu ce livre ?*

32. Translate into French : he has given me bread ; you have not sold me the book ; I should have given it to you ; we shall finish ; you will not sell.

33. Translate into French : it is I ; it is thou ; it is he ; it is she ; it is we ; it is you ; it is they ; for me ; without thee ; with him ; of her ; to them.

34. Say anything you know about the forms *je, moi, me, il, lui, le, la, ils, les, leur, eux*.

35. When are the personal pronouns placed after the verb ?

36. When are the personal pronouns placed before the verb ?

37. What is the relative position of personal pronouns when more than one precede the verb ?

38. Translate into French : I give it to him ; he gives it to me ; we shall give them to you ; he will not give it to them ; they gave them to her ; give it to me ; do not give it to them.

39. Say anything you know about the words *quel, lequel, qui, que, quoi, dont, en, y*.

40. Translate into French : I know what you say ; what I say is true ; what do you say ? I know what is good ; of what are you speaking ?

41. What is the difference between *qui* and *que* as relatives ?

42. Translate into French : my book and his ; his pen and hers ; your hat and mine ; their books and ours ; your pens and theirs ; her aunt and yours.

43. Say anything you know about *on, chacun, chaque, le sien, le leur, tout, aucun, personne, rien*.

44. What is peculiar about the conjugation of reflexive verbs ?

45. Give in full the Present Indicative of *se réjouir* and *se flatter*.

46. Give in full the Present Subjunctive of *se réjouir* and *se flatter*.

47. Give in full the Imperative (affirmative and negative) of *se réjouir* and *se flatter*.

48. Translate into French : I have rejoiced ; he had rejoiced ; they have flattered themselves ; we should have rejoiced.

49. Translate into French : had he flattered himself ? has she not rejoiced ? will you not rejoice ? was I not rejoicing ? have you not flattered yourself ?

50. Give in full the verb *y avoir* (Present *il y a*) simple and compound tenses.

51. Give in full the verb *falloir*, simple and compound tenses.

52. Say anything you know about *falloir* (*il faut*, &c.), its use, meaning, &c.

53. How are adverbs formed from adjectives ?

54. Give the principal tenses (1st pers. sing.) of *dire, faire, plaire*, and *suivre*.

55. Give the principal tenses (1st pers. sing.) of *craindre, courir, valoir, vivre*.

56. Give the principal tenses (1st pers. sing.) of *boire, absoudre, dormir, vouloir*.

57. Give in full the Present Indicative of *aller, venir, dire, pouvoir*.

58. Give in full the Future of *aller, valoir, voir, savoir*.

59. Give in full the Present Subjunctive of *boire, craindre, dire, rire*.

60. Give in full the Imperfect Subjunctive of *tenir, croire, naitre, pouvoir, cueillir*.

61. Give the Present and Past Participles of *s'asseoir*, *ceindre*, *fuir*, *pleuvoir*, *pouvoir*, *plaindre*.

62. Give in full the Imperative (2d pers. sing. and 1st and 2d pers. plural) of *boire*, *croire*, *dire*, *faire*, *joindre*, *suivre*, *tenir*.

63. Give in full the Imperfect Indicative of *connaître*, *écrire*, *lire*, *mettre*, *mourir*, *prendre*, *s'asseoir*, *savoir*, *faire*.

64. Give in full the Preterite Indicative (Past Definite) of *devoir*, *falloir*, *croire*, *faire*, *mettre*, *pleuvoir*, *se taire*, *vivre*, *voir*.

65. Give the synopsis (1st pers. sing. of all the simple tenses) of *devoir*, *vouloir*, *tenir*, *s'en aller*, *savoir*, *craindre*, *vêlir*, *suffire*.

66. Give the synopsis (1st pers. sing. of all the simple tenses) of *sentir*, *saillir*, *bouillir*, *conclure*, *concevoir*, *coudre*, *cuire*, *se taire*, *vaincre*.

67. Translate into French: I have gone; he goes away; believing; seen; I shall run; you say; I should sleep; we were reading (Imp.); I follow; they will have seen; they have lived; I can (am able); I do not wish; does he not see? do you please? was he writing (Imp.)? you will not say; we shall send; he goes away; go away.

68. Translate into French: he pleases; what are you doing? I am doing nothing; they took some; he was born in 1857; they translate; tell him; I instruct; I must say; I follow you; you conquer; he will follow me; we paint; I should fear; he must write; I have painted; you are reading; let us not read it.

69. Translate into English: *il ne faut pas que vous le fassiez; ne le lui dites pas; que dites-vous? il est venu me voir à sept heures.*

70. Translate into French: my hat and my brother's; his book and your sister's; these pens and your father's; I have seen to-day my house, yours, and your uncle's; we have butter and sugar, but no eggs; this is good, but that is better; can you tell me where it is? have you any paper? I have some, but he has none; I have a few pencils, have you any? tell me where he is going, if you know; I am right and you are wrong.

#### PRONUNCIATION.

The ability to read French at sight with a passable pronunciation will be accepted as an equivalent for a knowledge of the rules of pronunciation.

a. What letters are silent in *aimer*, *ils donnent* (they give), *recevoir*, *des*, *plusieurs*, *calme*?

b. What final consonants are generally pronounced?

c. When is *s* pronounced like *z*?

d. Indicate in the following the *s*'s that have the *z* sound: *ils ont*, *ils sont*, *nous avons*, *nous savons*, *base*, *basse*, *rose*, *bosse*, *rester*, *saisir*, *enthousiasme*.

e. How is *e* pronounced?

f. How is *é* pronounced?

g. How is *j* pronounced?

h. When has *t* the sound of *ss*?

i. Indicate the mute *e*'s in the following words: *donnerai*, *vile*, *jolie*, *donner*, *petite*, *boulevard*, *éternel*, *faire*, *terre*, *perpétuel*, *mademoiselle*.

j. Indicate in the following the syllables that have a nasal sound : *bonne, aucun, inutile, chacune, embonpoint, innocent, intrépide, une, rien, unique, ancienne, ami, amplement.*

k. Divide the following words into syllables : *finir, finirai, finissons, une, pomme, président, milieu.*

l. In which of the following words is the *l* liquid : *famille, celle, fille, œil, feuille, folle, milieu ?*

## II.

a. — Ainsi, pauvre enfant, — dit le gros homme à Camille aussitôt qu'il le vit ouvrir les yeux, — vous avez été abandonné, et un scrupule vous empêche de nommer le monstre qui s'est conduit ainsi à votre égard ! D'abord voici les dix francs que je vous dois. . . Voyons, que peut-on pour vous ? Que savez-vous faire ?

— Je sais lire, écrire, calculer et surtout jouer du violon, comme vous en avez peut-être été témoin hier soir, — répondit C. en acceptant l'argent que le gros monsieur lui présentait ; — mais c'est égal, bien qu'on gagne de l'argent à ce métier-là. . . ça me faisait mal de voir ces yeux fixés sur moi ; chaque sou qui tombait à mes pieds me rendait honteux. Si ce n'avait pas été pour obliger ce vieillard, certes, je n'aurais pas continué. — MME. FOA.

b. Les partisans de l'autorité absolue ont défendu, avec raison, l'étiquette. Pour que des hommes conservent à leur semblable un pouvoir sans bornes, il faut qu'ils le tiennent séparé de l'humanité, qu'ils l'entourent d'un culte de tous les instants, qu'ils lui conservent, par un continuel cérémonial, ce rôle surhumain qu'ils lui ont accordé. Les maîtres ne peuvent rester souverains qu'à la condition d'être traités en idoles.

Mais après tout, ces idoles sont des hommes, et si la vie exceptionnelle qu'on leur fait est une insulte pour la dignité des autres, elle est aussi un supplice pour eux ! Tout le monde connaît la loi de la cour d'Espagne, qui réglait, heure par heure, les actions du roi et de la reine, "de telle façon, dit Voltaire, qu'en la lisant on peut savoir tout ce que les souverains de la Péninsule ont fait ou feront depuis Philippe II jusqu'au jour du Jugement." Ce fut elle qui obligea Philippe III malade à supporter un excès de chaleur dont il mourut, parce que le duc d'Uzède, qui avait seul le droit d'éteindre le feu dans la chambre royale, se trouvait absent. — SOUVESTRE.

c. A la fin, prenant courage, j'appelai tout doucement, "Catherine !" Alors, elle, tournant la tête, s'écria :

"Joseph, . . tu me reconnais ?

— Oui, lui dis-je, en étendant la main."

Elle s'approcha toute tremblante, et je l'embrassai longtemps. Nous sanglotions ensemble.

Et comme le canon se remettait à gronder, tout à coup cela me serra la cœur.

"Qu'est-ce que j'entends, Catherine ? demandai-je.

— C'est le canon de Phalsbourg, fit-elle, en m'embrassant plus fort.

— Le canon ?

— Oui, la ville est assiégée.

— Phalsbourg ? . . Les ennemis sont en France ! . . "

Je ne pus dire un mot de plus. . . Ainsi tant de souffrances, tant de larmes, deux millions d'hommes sacrifiés sur les champs de bataille, tout cela n'avait abouti qu'à faire envahir notre patrie ! — ERCKMANN-CHATRIAN.

d. Hier soir, pendant que le vieil Alain, dont je suis le favori, me servait mon repas solitaire :

— Eh bien ! Alain, lui dis-je, voilà une belle journée. Vous êtes-vous promené aujourd'hui ?

— Oui, monsieur, ce matin, avec mademoiselle.

— Ah ! vraiment ?

— Monsieur nous a bien vus passer ?

— Il est possible, Alain. Oui, je vous vois quelquefois passer. . . Vous avez bonne mine à cheval, Alain.

— Monsieur est trop obligeant. Mademoiselle a meilleure mine que moi.

— C'est une jeune fille très-belle.

— Oh ! parfaite, monsieur, et au dedans comme au dehors, ainsi que madame sa mère. Je dirai à monsieur une chose. Monsieur sait que cette propriété appartenait autrefois au dernier comte de Castennec, que j'avais l'honneur de servir.

Quand la famille Laroque acheta le château, j'avouerai à monsieur que j'eus le cœur un peu gros, et que j'hésitai à rester dans la maison. J'avais été élevé dans le respect de la noblesse, et il m'en coûtait beaucoup de servir des gens sans naissance. Monsieur a pu remarquer que j'éprouvais un plaisir particulier à lui rendre mes devoirs ; c'est que je trouve à monsieur un air de gentilhomme. Êtes-vous bien sûr de n'être pas noble, monsieur ? — FEUILLET.

e. SAINT LOUIS. — Roi, il est le modèle des rois ; chrétien, il est le modèle de tous les hommes. Quel exemple pour nous ! il est humble dans le sein de la grandeur ; et nous, hommes vulgaires, nous sommes enflés de vanité et d'orgueil ! Il est roi, et il est humble : c'est beaucoup pour les moindres particuliers d'être modestes ; mais quelle différence entre la modestie et l'humilité ! Saint Louis secourt les pauvres, tous les païens l'ont fait ; mais il s'abaisse devant eux, il est le premier des rois qui les ait servis. C'est là ce que la morale païenne n'avait pas seulement imaginé. Toutes les vertus humaines étaient chez les anciens : les vertus divines ne sont que chez les chrétiens. Voir d'un même œil la couronne et les fers, la santé et la maladie, la vie et la mort ; faire des choses admirables et craindre d'être admiré ; n'avoir dans le cœur que Dieu et son devoir ; n'être touché que des maux de ses frères ; être toujours en présence de son Dieu ; n'entreprendre, ne réussir, ne souffrir, ne mourir que pour lui : voilà Saint Louis, voilà le héros chrétien ; toujours grand et toujours simple, toujours s'oubliant lui-même. — VOLTAIRE.

f. Les feuilles et les fleurs de la plupart des végétaux reflètent les rayons de la lune comme ceux du soleil. . . J'ai éprouvé un effet enchanteur de ces reflets lunaires. Quelques dames et quelques jeunes gens de mes amis firent un jour avec moi la partie d'aller voir le tombeau de Jean-Jacques à Ermenonville ; c'était au mois de mai. Nous prîmes la voiture publique de Soissons, et nous la quittâmes à dix lieues et demie de Paris, au-dessus de Dammartin. On nous dit que de là à Ermenonville il n'y avait qu'une heure de promenade. Le soleil allait se coucher. Nous marchâmes plus d'une heure et demie dans une vaste campagne sans rencontrer personne. Il faisait nuit obscure, et nous nous serions infailliblement égarés si nous n'eussions aperçu une lumière au fond d'un petit vallon : c'était une lampe qui éclairait la chaumière d'un paysan. Il n'y avait là que sa femme qui distribuait du lait à cinq ou six petits enfants de grand appétit. Comme nous mourions de faim et de soif, nous la

priâmes de nous faire participer au souper de sa famille. Nos jeunes dames parisiennes se régalaient avec elle de gros pain, de lait, et même de sucre dont il y avait une assez ample provision. Nous leur fîmes bonne compagnie. Après ce festin champêtre, nous prîmes congé de notre hôtesse, aussi contente de notre visite que nous étions satisfaits de sa réception. Elle nous donna pour guide l'aîné de ses garçons, qui, après une demi-heure de marche, nous conduisit à travers des marais dans les bois d'Ermenonville. Le lune, vers son plein, était déjà fort élevée sur l'horizon et brillait de l'éclat le plus pur dans un ciel sans nuages. — BERNARDIN DE SAINT-PIERRE.

g. Sophronyme, ayant perdu les biens de ses ancêtres par des naufrages et par d'autres malheurs, s'en consolait par sa vertu dans l'île de Délos. Pendant qu'il vivait heureux sans biens dans cette retraite, il aperçut un jour sur le rivage de la mer un vieillard vénérable qui lui était inconnu ; c'était un étranger qui venait d'aborder dans l'île. Ce vieillard admirait les bords de la mer, dans laquelle il savait que cette île avait été autrefois flottante ; il considérait cette côte, où s'élevaient, au-dessus des sables et des rochers, de petites collines toujours couvertes d'un gazon naissant et fleuri ; il ne pouvait assez regarder les fontaines pures et les ruisseaux rapides qui arrosaient cette délicieuse campagne ; il s'avançait vers les bocages sacrés qui environnent le temple du Dieu ; il était étonné de voir cette verdure que les aquilons n'osent jamais ternir, et il considérait déjà le temple, d'un marbre de Paros plus blanc que la neige, environné de hautes colonnes de jaspe. — FÉNELON.

h. Un certain goût pour la parure et les décorations se trouve souvent à Naples à côté du manque absolu des choses nécessaires ou commodes. Les boutiques sont ornées agréablement avec des fleurs et des fruits ; quelques-unes ont un air de fête qui ne tient ni à l'abondance ni à la félicité publique, mais seulement à la vivacité de l'imagination : on veut réjouir les yeux avant tout. La douceur du climat permet aux ouvriers en tout genre de travailler dans la rue. Les tailleurs y font des habits, les traiteurs leur cuisine, et les occupations de la maison, se passant ainsi au dehors, multiplient le mouvement de mille manières. — DE STAEL.

## COLLEGE EXAMINATIONS IN FRENCH.

The papers printed below do not include any of the special examinations of the year. In some cases synopses were used, from which a limited number of questions were selected.

### SOPHOMORES (see page 57).

(Final Examination, June, 1872.)

Translate into English : —

1. Tout en donnant libre cours à ma juste colère, je n'en voulus pas moins remercier le journaliste qui la veille avait parlé de moi. Quel que fût ce folliculaire, il ne me convenait pas d'être son obligé ; l'honorer de ma visite, c'était déjà m'acquitter.

Mais de tous ces jeux d'esprit, il n'y en a point qui me soient plus odieux que les paradoxes d'autrefois, mensonges morts depuis longtemps. Ils me font l'effet d'une vieille courtisane qui a oublié de se faire enterrer, et qui promène parmi la jeunesse dégoûtée, son fard, ses faux cheveux, et ses rides.

De tout temps, les ministres ont servi de but à messieurs les folliculaires : le plus célèbre gazetier est celui qui en abat deux ou trois.

Voilà notre capitaine qui va au feu ; j'espère que vous nous donnerez un coup de main ; la brigade est puissante, nous ne l'emporterons qu'à force de paroles et d'action.

Mais H. était un admirable joueur de paume ; pas de plaisanterie qu'il ne reçût et ne renvoyât de première volée. Une fois touché par lui, on n'y revenait guère. — *Paris en Amérique.*

2. Agathe, qui aurait dû être défiante puisqu'elle était bornée, se livrait aussi aveuglément que sa maîtresse.

Emma parcourut d'un coup d'œil les quatre coins de la salle d'attente ; elle n'y vit rien de saillant, que le râtelier d'une vieille Anglaise. Jusqu'au dernier moment, elle s'attendit à voir entrer quelque providence en paletot marron, quelque *Deus ex machina* roulé dans un plaid ; elle en fut pour son espérance. La cloche sonna, les portes glissèrent dans leurs rainures, le capitaine prit les parapluies ; il fallut partir.

A peine installé, il se retrancha de son mieux en fermant la portière et en baissant les stores : c'est ainsi qu'on s'y prend lorsqu'on aspire à voyager seul. Mais un couple fort ingambe escalada le marchepied et s'empara des deux coins qui restaient libres.

L'entretien fut interrompu par le capitaine, qui s'éveilla en éternuant trois fois. Il chercha la cause de sa démangeaison et la trouva dans l'étoffe dont le voisin était vêtu. C'était un tissu soyeux de laine très-longue, aussi chaud qu'une fourrure et beaucoup plus léger, excellent, en somme, pour le voyage. Mais M. B. avait aspiré une bouffée de laine, et un chatouillement incendiaire lui mettait le nez tout en feu.

Le pauvre garçon resta coi et se fit aussi mince qu'il put. La première escarmouche n'avait pas été brillante. — *Trente et Quarante.*

3. — Ah, fripon ! Plus de badinage ? Vous, qui faites l'entendu, faites-moi part de ce dont il s'agit. — Mal vous prendra de broder ou d'y mettre du vôtre. Est-ce que vous avez pris M. S. en grippe ? — Mais c'est lui qui tient la queue de la poêle. — Il n'a pas inventé la poudre et il tranche du grand seigneur, c'est vrai ; mais vous devriez lui passer ce tic-là, ou bien vous y faire. — D'ailleurs, vous avez beau refuser de me mettre au courant de ce qui s'est passé tout à l'heure. — Je vais vous mettre au pied du mur.

— Vous me croirez peut-être la tête un peu fêlée. — Vous me direz même que je suis un mauvais sujet, et que je ne tiens pas du tout de mon père ; mais advienne que pourra, je me tairai. — Je tiendrai bon, dussé-je m'en mordre les doigts plus tard.

— Tout de bon ? Mais je n'en reviens pas. — Je me mettrais en quatre pour vous. — Il ne tiendrait qu'à vous de réussir. — Maintenant que vous tenez à faire la mine et à vous passer de moi, tirez-vous-en comme vous pourrez. — *Chardenal.*



Translate into French :—

If the French equivalent for any word does not occur to you, insert the English word, indicating the construction.

Write all the numerals in words.

1. When he spoke, all listened to him with respect. 2. In notes, the date is generally put at the end. 3. It is a long time since they have seen each other. 4. Hardly had he learned what I had done for his brother, when he went away. 5. People don't like to be told their faults. 6. There, my boy, is what may be called a failure, and yet I did not die from it. 7. I must see her once more whom I am leaving forever. 8. "I tried to persuade myself that your father's horror for this name of artist was the only obstacle which separated us." — "Had it been the only one, it would have sufficed." 9. The more I go (about), the more I pride myself on my acquisition. 10. There are few men who resemble you, father; without you, I should not enjoy anything in the world. 11. "Good morning, Marie, I am delighted to see you. I thought you were in Spain still. When did you arrive in Boston?" — "I have just arrived. I left Madrid sooner than I expected, on account of my cousin Charles, the son of M. M., who is going to be married in three weeks. He is to marry a young French lady, who is four years older than himself, and whose portrait I will show you when you come to see me. Tell me, if you can, what people think of the match." — "There can be but one opinion about it. However agreeable she is, and whatever accomplishments she has, it is evident that she has no affection for him. If he should die the day after the wedding, she would not weep about it. If you had been at Paris a year ago, you would certainly think as I do." 12. Who wrote the letter which you received this morning, and which you were reading when I met you? 13. This cloth used to be sold for five francs a yard. 14. Each gave his advice. 15. What is there interesting in what they are talking about? 16. What prevented him from stealing that velvet coat of yours? 17. I complained of her yesterday, and I shall complain of her again to-day. 18. Whatever be their intentions, we must not forget that it is easier to say it than to do it. 19. He is useful to and loved by his family. 20. I made this man drink a glass of wine. 21. I shall make that man consent to this request.

### JUNIORS (see page 59).

(*Final Examination, June, 1872.*)

1. Translate into English :—

a. — Dites-moi un peu comment ce ladre s'y prend pour faire des emprunts sur le pied du denier trente. Veuillez m'aboucher avec lui.

— De quoi vous avisez-vous? Vous n'êtes pas majeur. Gardez-vous bien de manger votre blé en herbe.

— Que voulez-vous que j'y fasse? Me voilà gueux comme un rat. Il me faut, dès ce soir, mille écus en espèces bien trébuchantes. J'ai fait rage pour me les procurer, mais je n'ai pu en venir à bout.

— Comment! mille écus vous remettraient sur pied! Vous voilà bien malade! Il ne tient qu'à vous de vous défaire de vos fâcheux créanciers.

Laissez-moi agir auprès de votre belle-mère. Bien qu'elle m'ait fait mauvais visage à cause de l'affaire de tantôt, j'essayerai volontiers sa colère, je filerai doux, je me laisserai accommoder de toutes pièces, et s'il ne tient qu'à moi, j'aurai votre fait.

— Je m'en rapporte à vous. Mais, après tout, je saurai bien m'y prendre moi-même. Je n'ai pas besoin de procureur. Moyennant quelques douceurs, je saurai bien l'amadouer. J'y vais de ce pas.

— A la bonne heure ! Je ne trouve rien à redire à cela. Mais, quant aux fesse-mathieu, méfiez-vous des guets-apens qu'ils pourront vous tendre, et quant au dit prêteur avec son mémoire de hardes et de nippes, ce n'est pour tout potage qu'un faquin et un maraud. Tenez-vous-le pour dit ; quant à cela je n'en démordrai point.

b. L'École des Femmes, Act II., Sc. 1, l. 1-10.

c. L'École des Femmes, Act IV., Sc. 6, l. 1-25.

2. Give the corresponding English expressions for : a. *Mauvaise herbe croît toujours.* b. *Qui se sent morveux, qu'il se mouche.* c. *Est-ce que j'en puis mais ?* d. *A d'autres.* e. *Ce ne sont pas des prunes que cela.* f. *J'en suis quitte à bon compte.* g. *Il l'a fait de plus belle.*

3. In what special senses are the following words used by Molière : *feindre, fêru, cadeau, canon, créance, heur, confrérie, blanchir, ruelle.*

4. Explain the expressions : a. *Aller sur les brisées de quelqu'un.* b. *C'est son épée de cheval.* c. *Vous aurez beau tourner.* d. *Il nous en a fait accroire.*

5. What Latin play has Molière imitated in *L'Avare* ?

6. Translate into French : —

a. Mrs. N.'s watch had stopped ; how provoking ! Vexed at having no immediate means of convincing people that she was right, our heroine consoled herself by proceeding to criminate her husband, not in this particular instance where he pleaded guilty, but upon the general charge of being always too late for dinner, which he strenuously denied.

b. The voice and manner together, now that he spoke out ; the composure of the speaker ; the presence of his son ; and his knowledge of Mr. P., afforded a clue to his identity which it was impossible to mistake.

c. One evening, on his return from hunting, he told me that he could understand the language of birds. There were two owls on a heap of rubbish. I asked him to repeat to me what they were saying, but he answered that he dared not tell me what it was.

d. He always maintains an argument with heat and clamor, and when he thinks himself in the right, he never gives his opinion modestly and coolly.

e. If my worthy friend should betray any infirmity of old age, you would observe a look of concern in his butler and coachman, who are wonderfully desirous of pleasing him.

f. I have been at a great deal of trouble to get back the money he borrowed.

g. It's quite understood that, if there's no room inside, he agrees not to charge me more than the outside price.

h. As they are travelling to London, we trust you will have the pleasure of their company all the way.

**Early and Norman French (see page 61).***(Final Examination, June, 1872.)***1. Traduisez en bon français moderne :—**

Au mois d'aoust entrames en nos nez à la Roche de Marseille. A celle journée que nous entrames en nos nez, fist l'en ouvrir la porte de la nef, et mist l'en touz nos chevaux ens, que nous devions mener outre-mer ; et puis reclost l'en la porte et l'enboucha l'en bien, aussi comme l'en naye un tonnel, pour ce que, quant la nef est en la mer, toute la porte est en l'yaue. Quant les chevaux furent ens, nostre mestre notonnier escria à ses notonniers, qui estoient ou bec de la nef, et leur dit : "Est arée vostre besoigne ? Sire, vieingnent avant les clers et les proveres." Maintenant que il furent venus, il leur escria : "Chantez, de par Dieu" ; et ils s'escrierent touz à une voix : *Veni creator spiritus*. Et il escria à ses notonniers : "Faites voille, de par Dieu" ; et il si firent. Et en brieftens le vent se féri ou voille et nous ot tolu la veue de la terre, que nous ne veismes que ciel et yaue ; et chascun jour nous esloigna le vent des pais où nous avions esté nez. Et ces choses vous monstre-je que celi est bien fol hardi, qui se ose mettre en tel péril, à tout autrui chatel ou en péchié mortel ; car l'en se dort le soir là où en ne scet se l'en se trouverra ou fons de la mer.

En la mer nous avint une fière merveille, que nous trouvames une montagne toute ronde qui estoit devant Barbarie. Nous la trouvames entour l'eure de vespres, et najames tout le soir, et cuidames bien avoir fait plus de cinquante lieues, et lendemain nous nous trouvames devant icelle meismes montagne ; et ainsi nous avint par deux foiz où par troiz. Quant les marinniers virent ce, il furent touz esbahiz, et nous distrent que nos nefz estoient en grant péril ; car nous estions devant la terre aus Sarrazins de Barbarie. Lors nous dit un pseudomme prestre que en apeloit doyen de Malrut, car il n'ot onques persécution en paroisse, ne par défaut d'yaue, ne de trop pluie, ne d'autre persécution, que aussi tost comme il avoit fait troiz processions par troiz samedis, que Dieu et sa mère ne delivrassent. Samedi estoit ; nous feismes la première procession entour les deux maz de la nef : je-meismes m'i fiz porter par les braz, pour ce que je estoie grief malade. Onques puis nous ne veismes la montagne, et venimes en Cypre la tiers samedi. — JOINVILLE.

**2. Traduisez en français :—**

a. Seven years have now passed, since I waited in your outward rooms, or was repulsed from your door ; during which time I have been pushing on my work through difficulties of which it is useless to complain, and have brought it, at last, to the verge of publication without one act of assistance, one word of encouragement, or one smile of favor.

b. This state of mind could not last long, and I returned with languid feelings to my inn. I ordered my dinner, green peas and a sweetbread ; it had been a favorite dish with me in my childhood ; I was allowed to have it on my birthdays. I was impatient to see it come upon the table ; but, when it came, I could scarce eat a mouthful ; my tears choked me. I called for wine ; I drank a pint and a half of red wine, and not till then had I dared to visit the churchyard where my parents were interred.

## 3. GRAMMAIRE HISTORIQUE.

a. Caractères spécifiques des mots d'origine populaire : 1. Persistance de l'accent latin ; 2. Suppression de la voyelle brève ; 3. Chute de la consonne médiane.

b. Verbes : Formation du futur et du conditionnel ; lettre caractéristique de la 2<sup>e</sup>, de la 3<sup>e</sup> personne du singulier ; division des formes verbales en fortes et faibles ; *iss* dans *emplissais* ; *t* dans *donne-t-il*.

c. Différences dialectales : *ameve*, *amaic*, *amoue* (*aimais*) ; *roi*, *reine*. Orthographe dite de Voltaire.

## 4. LITTÉRATURE.

a. Cycle carlovingien : Chanson de Roland, Chronique de Turpin ; Roman des Loherains ; Chanson des Saxons ; Ogier le Danois ; Voyage de Charlemagne à Jérusalem ; caractère féodal des chansons de geste ; Eten due du cycle carlovingien.

b. Fabliaux, satires, lais, fables : Les romans de Renart ; Rutebeuf ; Marie de France ; le roman des sept sages.

## Old French (see page 61).

(Final Examination, June, 1872.)

To be translated :—

- 1 Moult fu dolenz Guillaumes li marchis,
- 2 De Vivien est moult mus et pensis,
- 3 L'eve li cole aval par mi le vis :
- 4 Lors le conforte Guiborc la seignoris
- 5 Et les enfanz qu'ele ot soef norris.
- 6 Plore Guillaumes ; Guiborc le conforta ;
- 7 "Gentex cuens, sire, ne vos esmaiez ja ;
- 8 Tex a perdu qui regaaignera,
- 9 Et tex est pources qui riches devenra ;
- 10 Tex rit au main, au vespre plorera ;
- 11 Ne se doit plaindre li homs qui sante a.
- 12 Bone piece a li siecles commenca,
- 13 Mors est Adans que Dex primes forma,
- 14 Et si enfant quanques il engendra ;
- 15 Par le delouve toz li mondes noia,
- 16 Fors que Noe plus nus n'en eschapa ;
- 17 Ensi le volt qui le monde restora.
- 18 Moult a dure et encor durera ;
- 19 Ja de la mort uns seus n'eschapera ;
- 20 Taut com el siecle chascuns demourera
- 21 Si se contiegne au miex que il porra ;
- 22 Se il sert Deu, a bone fin veura.
- 23 Moult doit liez estre homs qui bone feme a,
- 24 Et s'il est bons de fin cuer l'amera,
- 25 Le bon consell qu'el li done crera,
- 26 Et je sui cele qui bon le vos donra."

GUILLAUME D'ORANGE.

5. In what case is *les enfanz* ? How are the terminations of singular and plural distinguished ? Is *soef* one syllable or two ?

4, 6, 9, 11. How do you scan these verses ? Are they hendecasyllabic ?

To be translated :—

- 1 "Ha ! fine amor, et qui pensast
- 2 Que cilz feist vers moi desroi
- 3 Qui disoit, kaut estoit o moi
- 4 Et je faisoie mon povoir
- 5 De faire trestout son vouloir,
- 6 Qu'il iert tous miens, et a sa dame
- 7 Me tenoit et de cors et de ame,
- 8 Et le disoit si doucement
- 9 Que l'en creioie bonement,
- 10 Ne je ne cuidasse a nul fuer
- 11 Qu'il pouist trover en son cuer
- 12 Envers moi courrous ne haine
- 13 Por duchoise ne por roine ?
- 14 Car bien connois en mon courage
- 15 S'avant morust, que taut l'amaïsse
- 16 Que apres lui petit duraisse ;
- 17 Qu'estre morte o lui me fust miex
- 18 Que vivre si que de mes iex
- 19 Ne le veisse nule fois.
- 20 Ha ! fine amor, est ce dont droiz
- 21 Que il a ainsis descouvert
- 22 Nostre consoil dont il me pert ?
- 23 Qu'a m'amor otroier li dis
- 24 Et bien en convenant li mis
- 25 Que a cele eure me perdroit
- 26 Que nostre amor descouvreroit.
- 27 Et quant j'ai avant perdu lui,
- 28 Ne puis apres itel anui,
- 29 Sans celui por coi je me deul,
- 30 Ne puis vivre, ne je ne veul,
- 31 Ne ma vie ne me plait point ;
- 32 Ains pri Dieu que la mort me doint,
- 33 Et que tout aussi vraiment
- 34 Com j'ai ame bien loiaument
- 35 Celui qui ce m'a porchacie
- 36 Ait de l'ame de moi pitie,
- 37 Et a celui qui a son tort
- 38 M'a trahie et livree a mort
- 39 Doint l'onor, et je le pardon ;
- 40 Ne ma mort n'est se douce non,
- 41 Ce m'est avis, quant de li vient ;
- 42 Et quant de s'amor me souvient,
- 43 Pour li mourir ne m'est pas paine."
- 44 Atant se tut la chastelaine
- 45 Fors qu'ele a dit en souspirant
- 46 "Dous amis, a Dieu vous commant."

CHASTELAINE DE VERGY.

6. In what tense is *iert* ? 10. From what Latin verb is *cuidasse* derived, and in what mood and tense is it ? From what Latin word is *fuer* derived ? 17. In what mood and tense is *fust* ? 32. *Doint* : from what Latin verb ? 23, 24, 41, 43. In what case is *li* ?

## ITALIAN.

## SOPHOMORES (see page 57).

(Final Examination, June, 1872.)

Translate :—

— Siete mai stato a Venezia? E quasi una domanda illecita, dopo il ponte che la congiunge a Milano. Pure, se mai le circostanze non ve lo avessero permesso finora, fate uno sforzo e andateci.

— Ma io devo parlarvi dei colombi di San Marco. Chi può contarli? Quale è l'origine di questi colombi?

— Dal giorno in cui lasciammo la nostra Perla, fino a quello in cui stiamo per rivederla, non passarono che pochi mesi; ma questo breve intervallo è contrassegnato da un avvenimento che nessuno potrà cancellare nella mente dei Veneti. La Repubblica cadde.

— La povera famiglia di cui raccontiamo la storia, non aveva guadagnato nè perduto ai moti politici del 1848.

— Fu verso quest'epoca che ebbe luogo l'incidente del Colombo. Perla lo chiamava Marco, pensando alla storia di quei colombi; mentre il suo cuore lo chiamava Beppo. "Chiamalo come vuoi, ma non Marco," disse il vecchio Luca, "e togliili dal collo quel nastro repubblicano."

— Giure (così chiamavasi l'ufficiale) era un giovine di bello aspetto. Egli non mancò di chiedere novelle della giovane. Non tardò molto a sapere ciò che era avvenuto nella sua assenza. Gli dissero di Beppo, e della morte di quel valoroso.

— Perla, vedendo che la sua resistenza non la salvava dalla persecuzione dell'alfiere, si determinò ad ascoltarlo. Chiesta di un colloquio, assentì.

— Tonio cominciava a perdere la pazienza; e se Perla non gliel'avesse impedito, avrebbe più volte pregato il signor ufficiale di andarsene.

1. Write the following sentences in idiomatic Italian, using the text as vocabulary (English words in italics are to be left out in Italian):—

a. One day, while I was going toward San Marco, a young ensign saw me, called me, and asked me (*dat.*) what was the origin of the many doves which were passing. They were so many that we were not able to count them, and each of them was distinguished by a beautiful ribbon.

b. That youth prayed me to relate to him all their history. *Being* asked several times, I assented, and determined to tell him all that which I knew of their origin. I was about to begin, and I would have spoken to him of Perla and of Tonio her brother (*fratello*), and of Luca and all the others, and of all that which had happened to them from the year 1848 until now, if he had allowed me.

c. But he prevented me, saying that he had lost *his* patience. He was not thinking of anything except the doves, and he said: "I do not wish to know *anything* else. Do not thou relate to me *anything* else."

d. We were both on (*su*) that very beautiful bridge by which Venice is joined to Milan. This is the most beautiful of all the places that I have ever seen. In this interval, while we were talking, *there* passed all the family of Luca. I called the old *man*, and having prayed him to relate

himself to the officer the story of the doves, I left them there and went away.

e. Another day, in this same place I saw a youth fall from that bridge. He had made every effort to (*per*) save himself from death, but his circumstances prevented him. Who would have had the heart to (*dà*) leave him? Not I. Everybody was asking: "What is his name?" and "Who will save the poor (*dimin. in-etto*) fellow?"

f. After the event many said that he would have been lost, if I had not done that which I did. I thought of my poor brother, of all my family, even of myself. But the interval was very brief. I did not delay to determine that I would save him. Still I did not know how to do it.

g. A poor young woman, who was standing (*stare*) there, took off some ribbons from her neck, and gave (*dare*) them me, saying: "Sir, will you have these? It is almost nothing. Shall we be able to save him with these?" "We shall see," said I.

h. I joined the ribbons and let (*lasciare*) them fall as far as the youth, who, after many efforts, was saved. Every one began to ask: "Who is he?" "How did it happen?" and "Which is the young woman that has saved him?"

i. But she had gone away, leaving me her ribbons which she had taken off to save a valiant man. Some one begged me to give them to him, and I gave them to him. Nothing will ever cancel that event nor the circumstances of it from my mind.

2. Write out (without pronouns) all the irregular tenses of the verbs underscored in the text.

3. Select any transitive verb from the text, and write tenses — as negative reflective (ex. gr. *I do not see myself*) with pronouns both nominative and objective.

4. Select another transitive verb, and write tenses — as pronominal (ex. gr. *I give it to myself*) with all three pronouns, nominative, accusative, and dative, throughout. Take *lo* = *it*.

5. The following English sentences are made from words in the text. The Italian translations of them contain several mistakes. Re-write the Italian, correcting all mistakes:—

Eng. If I had not been to Milan in 1848, I should not delay to go there.

Ital. Se io non avrei stato a Milano in 1848, io non tardasse vi andare.

Eng. When these few days shall have passed, we will all go to Venice.

Ital. Quando quelli poche giorni avranno passate, noi andaremmo ogni a Venezia.

Eng. Do not thou fail to speak to him of it. I shall not fail.

Ital. Non manca tu a gli parlare di lo. Io non mancherà.

Eng. Perla would have lost her dove and its ribbon, if Tonio had not been with her.

Ital. Perla avessi perduta suo colombo e lo suo nastro, se non Tonio aveva stato con ella.

## JUNIORS (see page 59).

(Final Examination, June, 1872.)

Translate :—

— Perpetua entrò in fretta nell' orto, e chiuse l'uscio. Renzo tornò indietro, andò diviato al salotto dove aveva lasciato Abbondio, e corse verso lui. "Chi è quel prepotente?" disse Renzo con la voce d'un uomo ch'è risoluto d'ottenere una risposta precisa. "Come si chiama colui? Lo voglio sapere."

— "Ma se parlo son morto. Non m'ha da premere la mia vita?"

— "Dunque parli. Le prometto che fo uno sproposito se lei non mi dice il nome di colui."

— "Come?" rispose Abbondio, il quale, dopo un così gran sacrificio, si sentiva in certo modo divenuto creditore. "Vorrei che la fosse toccata a voi, come è toccata a me; che certamente non vi sarebb'er rimasti tanti grilli in capo." E qui si fece a dipingere il brutto incontro; e, nel discorrere, accorgendosi sempre più d'una gran collera che fin allora era stata nascosta nella paura, e vedendo nello stesso tempo che Renzo stava immobile, continuò allegramente: "M'avete reso un bel servizio. Non si tratta di torto o di ragione; si tratta di forza. Renzo, badate a quel che fate. Aprite almeno."

— Il palazzotto di Rodrigo sorgeva sulla cima d'uno de' poggi. Verso il lago giaceva un mucchietto di casupole. Fra Cristoforo attraversò il villaggio. Il padre si fermò ritto, in atto di chi si dispone ad aspettare; ma un dei bravi s'alzò e gli disse: "Venga pure avanti."

— "Sentite, figliuoli," riprese Cristoforo, "io anderò a parlare a quell'uomo. Voi intanto statevi quieti e ritirati, e non vi fate vedere. Stasera o domattina mi rivedrete"; e partì. S'avviò al convento, desinò, e si mise subito in cammino.

1. Write the following sentences in idiomatic Italian, using the text as vocabulary (English words in italics are to be left out in Italian):—

a. Ho! (*Ehi*) Rodrigo, my son! Stop! *I* say. Where are you going in so much haste? Don't you know who it is that calls you? It is I.

b. Is it you? but I—*do you* know?—thought (*credere*) that it was a certain man who for (*da*) several days (*giorno*) has not let me be.

c. How many fancies you have in your head! I perceive that you are always the same. But where have you been all this time? I saw yesterday two *men* who had been to Renzo's to have something told to them of you. But they did not obtain *any* precise answer, because neither that good man nor Lucia knew anything. Now I should like to know why you have not let yourself be seen. It is already at least ten days that no one has seen you nor heard your voice. You have caused us a fine (*bello*) fright. Where did you go to hide yourself? Even if you had been dead, you could (*potere*) not have remained more retired. And meanwhile, while (*mentre*) this very great fright fell to our share, you, by (*a*) what I see, have been *staying* joyfully who knows where, and have become more and more large and beautiful.

d. Do not thou go into a passion. Now at last I have returned, and we see each other again. Wait a little, and I will tell you everything. But not in so much haste. We have not seen each other for (*da*) so long



(i. e. much) time! There is so much to tell! But I promise you that you shall know everything. If you care to (*dì*) know all, I care even more to tell it you, and immediately. Come here with me; we will go to that garden, and having entered there, and closed the door, we will converse by ourselves (*noi*) of that which you shall wish, lying there very quiet.

e. I am not going into a passion. What a blunder it would be! Nay, I have certainly more fear than anger. Go forward (and welcome), and be very certain that I shall never leave you more.

f. Well (*ebbene*), then: when I departed from you, it was said, that I was resolved to leave my father and you. They were wrong. It was the greatest sacrifice that I ever made. It was not a question of wishing, but of force greater than my own. You know already that immediately after that day on which I rendered so great a service to my many creditors, I set out straight toward the convent. There that same Fra Cristoforo, whom you have often seen at Renzo's, opened the door to me and made me go in. He talked to me like a father. Next he made me dine; then we arose, and he wished to know whither I was going. I replied: "I am going to Lucia's this evening, and to-morrow I shall set out again toward the village." "If Abbondio should not be there" (*enclitic*), he replied, "there are there some huts, where you could hide yourself. But do not stop in the village." I perceived that he was right. I left him at once, and stopped at what-do-you-call-him's.

2. Write out as a negative reflective all the irregular tenses of the verbs underscored in the text (ex. gr. *I do not love myself*).

3. Select a transitive verb from the text, and write tenses — as a pronominal verb (ex. gr. *I give it to myself*), taking *lo* = *it*.

4. The following English sentences are made from the text. The Italian translations of them contain several mistakes. Re-write the Italian, correcting all the mistakes:—

Eng. You told me that you had been ten days in this village.

Ital. Voi dicesti mi che avevate stati dieci giorni in quello villaggio.

Eng. The fright which thou causedst to thyself was the greatest fright that thou hast ever had.

Ital. La paura che ti fecesti fu la paura la più grande che tu abbi mai avuto.

Eng. We had not caused ourselves a very great fright.

Ital. Noi ci non avevamo fatta una la più grande paura.

### SENIORS (see page 61).

(Final Examination, June, 1872.)

Translate:—

Appresso della ragionata particola è da procedere all'ultima per la quale il testo intende mostrare quello che fa la nobile anima nell'ultima età, cioè senio. E dice eh'ella fa due cose, l'una ch'ella ritorna a Dio siccome a quello porto ond'ella si partio quando veune da entrare nel mare di questa vita. L'altra si è ch'ello benedice il cammino che ha fatto peroc-

chè è stato diritto e buono e senza amaritudine di tempesta. E qui è da sapere che, siccome dice Tullio in quello di *Senettute*, la naturale morte è quasi porto a noi di lunga navigazione e riposo. E così come al buon marinaro, che, come esso appropinqua al porto cala le sue vele, e soavemente con debile conducimento entra in quello, così noi dovemo calare le vele delle nostre mondane operazioni e tornare a Dio con tutto nostro intendimento e cuore, sicchè a quello porto si vegna con tutta soavità e con tutta pace. Ed in ciò avemo dalla nostra propria natura grande ammaestramento di soavità, che in essa cotale morte non è dolore nè alcuna acerbità, ma siccome un pomo maturo leggermente e senza violenza si spicca dal suo ramo, così la nostra anima senza doglia si parte dal corpo ov'ella è stata. E siccome a colui che viene di lungo cammino, anzi che' entri nella porta della sua città, gli si fanno incontro i cittadini di quella, così alla nobile anima si fanno incontro quelli cittadini della eterna vita; e così fauno per le sue buone operazioni, e contemplazioni, che già essendo a Dio renduta e astrattasi dalle mondane cose e cogitazioni, vedere le pare colore che appresso di Dio crede che sieno. — DANTE, *Convito*.

What is the past participle of *procedere*? Give the perfect, future, and present subjunctive of *fare*. What is the modern form of *partio*? Give the present and future tenses of *venire*. Give the perfect and future of *sapere*. Give the present and future of *dovere*. Where is *vegna* made? What is its modern form? Give the perfect and present subjunctive tenses of *vedere*. What is the perfect of *trarre*?

Translate :—

Non è questo il terren ch'io toccai pria?  
 Non è questo il mio nido  
 Ove nudrito fui sì dolcemente?  
 Non è questa la patria in ch'io mi fido,  
 Madre benigna e pia,  
 Che copre l'uno e l'altro mio parente?  
 Per Dio, questo la mente  
 Talor vi mova; e con pietà guardate  
 Le lagrime del popol doloroso  
 Che sol da voi riposo  
 Dopo Dio spera; e pur che voi mostriate  
 Segno alcun di pietate,  
 Virtù contra furore  
 Prenderà l'arme, e fia 'l combatter corto:  
 Che l'antico valore  
 Negl' Italici cor non è ancor morto.  
 Signor, mirate come 'l tempo vola,  
 E sì come la vita  
 Fugge e la morte n'è sovra le spalle.  
 Voi siete or qui; pensate alla partita:  
 Che l'anima ignuda e sola  
 Conven ch'arrive a quel dubbioso calle.  
 Al passar questa valle  
 Piacciavi porre giù l'odio e lo sdegno,  
 Venti contrari alla vita serena,  
 E quel che'n altrui pena  
 Tempo si spende, in qualche atto più degno

O di mano o d'ingegno,  
 In qualche onesto studio si converta :  
 Così quaggiù si gode  
 E la strada del ciel si trova aperta.

PETRARCA, Canzone XVI.

Give the future and present subjunctive of *toccare*. Give the past participle of *coprire*. In what tense is *mova*? What are the perfect and past participles of *muovere*? In what tense is *mostriate*? What are the perfect and past participles of *prendere*? What modern form has taken the place of *fia*? Give the present subjunctive of *morire*. In what tense is *arrive*? What is its modern form? Give the perfect and past participles of *piacere*; of *spendere*.

## SPANISH.

### JUNIORS (see page 59).

(Final Examination, June, 1872.)

Translate : —

— Oh señor Gil Blas, me dijo alzándose de la mesa, estoy tan contento de lo bien que vmd me ha tratado, que no le puedo dejar sin darle un importante consejo, del que me parece tiene no poca necesidad. Desconfie por lo comun de todo hombre á quien no conozca; y esté siempre muy sobre sí para no dejarse engañar de las alabanzas. Podrá vmd encontrar con otros que quieran, como yo, divertirse á costa de su credulidad, y puede suceder que las cosas pasen mas adelante. No crea vmd, sobre su palabra, que le tengan por la octava maravilla del mundo. Diciendo esto, rióse de mí, y me volvió las espaldas.

— En fin llegó al cabo de seis meses este dichoso dia. No fué menester esperar mas. El señor Rolando dijo á sus camaradas: "Caballeros, es preciso cumplir la palabra que dímos al pobre G. B. A mí me parece bien este muchacho; y espero que tendrémos en él un hombre de provecho. Soy de sentir que mañana le llevemos con nosotros, para que dé principio á coger laureles en los caminos reales.

— Si mis desgracias me quitáron todos mis bienes, no me hiciéron perder todos mis amigos. Aun me quedan algunos verdaderos.

— No tardó mucho en volver su señoría ilustrísima y me hizo entrar en su estudio para hablarme á solas.

— Me tocó sentarme al lado de un antiguo ayuda de cámara.

— Hijo mio, prosiguió el arzobispo, escucha lo que voy á decirte. Hoy pasan mis obras por enérgicas; pero no querría caer en las faltas de los buenos escritores que escriben muchos años. Exijo una cosa de tu zelo: cuando notes que mi estilo envejece, no dejes de avisármelo. En este punto no me fio de mí mismo.

— Los hombres plebeyos deben respetar siempre á las presonas distinguidas, por mas motivo que tengan para quejarse de ellas.

1. Write the following sentences in idiomatic Spanish, using the text as vocabulary ("you" is to be rendered by "vmd" or "vmds" throughout; English words in parentheses are not needed in Spanish):

a. Do you wish that I should tell you all that which has happened to me in the six years that (*que*) I have been awaiting our good friend Roland and you?

b. I have been through all the world. I have met with many of the most distinguished men that are in this world, and I have seated myself at the tables of plebeians.

c. Some of them had many faults; some few distrusted me; others did not wish to know me; but never did any one fail to fulfil the word that he had given me.

d. At the beginning of the year I lost my sons, who left me in order to go to the archbishop. The latter would have wished to have me also (*tambien*) for his aid.

e. I went to speak to him of this. He said to me, that I passed for the most distinguished writer that there was in all the world.

f. However much credulity might have fallen to my share, and however much I might have wished to be held as the eighth wonder of the world, I could not have failed to notice how (*neut. construction*) excessive (*excesivo*) were the praises which he bestowed on (*dar*) me.

g. This caused me to distrust that poor man, and to stand on my guard. I should not have allowed myself to be deceived by his words, even if (*aun si*) he had said those same things again with more zeal.

h. The more he said he was my truest friend, the less I believed him. At last I could (endure) no more. I had to laugh at him, and, rising, I said to him:

i. "Your lordship must believe that I have more credulity than men commonly have, and that I do not know my faults.

j. "Very few men would have listened to praises as excessive as those to which I have listened. Believe it, sir, on my word, many would have turned their backs on you at the beginning, and would have left you, laughing at you.

k. "And if I have delayed so much to do it, do you believe that I have been deceived? If we had not been talking (all) alone in your study, your words would have made me lose already (*ya*) the respect (*el respeto*) which I owe to you.

l. "However, now since (*ya que*) I am about to go (*irse*), permit me to give you some important counsels.

m. "You have grown old in your faults. You may be a very good writer, but will you ever make others believe that you are a true friend?

n. "He who bestows (*dar*) so excessive praises on (*d*) every one, does it at the cost of (*de que*) being laughed at. There is no profit in this."

o. Then I went on: "The counsels which I should wish to give you are these. It may be that some other persons may come (*venir*) here to speak with you upon these points.

p. "Be then on your guard, sir, and do not allow things to go farther than they have gone to-day. Do not exact as much from (*de*) their credulity as you have exacted from mine.

q. "If you give praises, let (them) be true. I am now going (*irse*). My sons will remain with you, if you shall wish it.

r. "I shall always speak, to whomsoever I may meet, of how well I have been treated by you (*neut. construction*). But you and I will never meet each other again."

2. Write out (without pronouns) all the irregular tenses of the verbs underscored in the text.

3. Select a verb from the text, and write tenses — — of it as a negative reflective.

4. The following English sentences are made from words in the text. The Spanish translations of them contain several mistakes. Re-write the Spanish, correcting all the mistakes :—

Eng. To-morrow I shall be amusing myself all day.

Span. Mañana seré divertendome todo día.

Eng. I shall give you all that which you may wish.

Span. Daré á vmd todo que vmd quisiese.

Eng. I shall pass for a good writer, if my works are (i. e. *shall be*) energetic and important.

Span. Yo pasaré por un bueno escritor, si mi obras sean enérgicas y importantes.

Eng. You gave me your word, and it is necessary that you should fulfil it; and I shall not wait any longer.

Span. Vmd me di vuestra palabra, é lo es preciso que vmd cumpla la; y you no esperaré mas.

Eng. If these persons were as good as you say, I should not distrust them.

Span. Si esas personas estarían tanto buenos como vmd dice, yo no desconfiese de les.

### III. PHILOSOPHY.

#### FRESHMEN (see page 56).

##### ETHICS.

(*Final Examination, February, 1872.*)

1. Define *Ethics*; *Right*; *Wrong*; *Action*; *Intention*; *Character*.
2. What are the respective provinces of Thought and Feeling in action?
3. What is the ground of the duty of Veracity and how much does that duty comprehend?
4. What is Piety, and what are its grounds?
5. What are the mutual relations of the True, the Right, and the Good?

## EVIDENCES OF CHRISTIANITY.

1. What are our sources of religious knowledge?
2. Describe the position, claims, and success of Jesus.
3. What marks of honesty and consistency are to be found in the Gospels?
4. Describe Strauss's mythical theory of the Gospels, and show why it is untenable.
5. What evidence for Christianity is derived from the early martyrdoms?

## JUNIORS.

Required Philosophy (see page 58).

## LOGIC.

(Special Examination, February, 1872.)

I. — 1. Divide logically the genus *inference* into its species and sub-species, and apply the rules for correct division to the species of the *sum-mum genus*. 2. Give the extensive and the intensive meaning of *inference*, *immediate inference*, and *mediate inference*. 3. Show that your notion of the thing B involves the following judgments: B is either B or not-B; B is B; B is not not-B. 4. Prove that the truth of the proposition A involves the truth of the *subaltern*, and the falsity of both the contradictory and the contrary. 5. If I is false, what follows in regard to A, E, and O, and why? 6. Why not infer the truth of A from the falsity of E? 7. In what sense is the proposition — *Some Juniors will not be conditioned* — both true and false, and why does it not contradict the second primary law of thought? 8. Infer A from E by privative conception, and express the mental process. 9. Infer by privative conception from — <sup>1</sup>*Some brave men are not prudent*; <sup>2</sup>*some discoveries of modern science are invaluable*.

II. — 1. Show by Euler's diagram that the contrapositive of A is a correct inference from A. 2. Convert the proposition — *Some men who study to please themselves do not please to study much*. 3. <sup>1</sup>When A is equal to U, and I is equal to Y, into what may A and I be converted *per accidens*? <sup>2</sup>And into what propositions, and by what ways, are A and I usually converted? 4. Convert a proposition <sup>1</sup>whose predicate is an *accident* of the subject; <sup>2</sup>whose predicate is a *property* of the subject; <sup>3</sup>whose predicate is the *genus* and *differentia* of the subject. 5. Give an example of a true hypothetical proposition, whose antecedent and consequent are each false. 6. What hypothetical proposition is correctly inferred from — If A is B, C is not D? 7. What are the three essential properties of a true disjunctive proposition? 8. Why is not the following proposition a true disjunctive? — *Logic treats of terms, of sentences, of mediate reasoning, or of fallacies*. 9. Express in hypothetical form the immediate inferences from — A is B, or C is D, or E is F.

III. — 1. Show that the first and the second canon of reasoning follow respectively the first and the second primary laws of thought. 2. Using concrete terms, give an example of a complete syllogism, in the order

both <sup>1</sup> of extension and <sup>2</sup> of intension. Then give both <sup>3</sup> the extensive and <sup>4</sup> the intensive *meaning* of the same syllogism. <sup>5</sup> Express the same argument in the form of an enthymeme of the second order. 3. Prove that, in every valid syllogism, the middle term is <sup>1</sup> distributed once at least, and <sup>2</sup> need not be distributed twice. 4. Prove that, if one of the premises is negative, the conclusion is negative. 5. Prove that no conclusion can be drawn from two particular premises. 6. Which of the following moods are <sup>1</sup> invalid?—AAA, AOI, EIE, EIO, IEO, III, IAI, IOI, OOO, and OEO. <sup>2</sup> And why invalid? 7. In which of the four figures are the following moods <sup>1</sup> valid?—EAO, AAI, OAO, and AEE. <sup>2</sup> And why valid? 8. Prove that, in a valid mood of the second figure, one of the premises is negative, and the major premise is universal. Determine, by this proposition, which of the eleven valid moods are valid in the second figure. 9. Reduce *Datisi*, *Bramantip*, and *Cesare* to the first figure. 10. "Reduce" by the direct method, and also by the indirect, the following syllogism: "All wise men know themselves; some men of extensive knowledge do not know themselves. Therefore some men of extensive knowledge are not wise men."

IV. — 1. Prove that denying the consequent, in a hypothetical syllogism, denies the antecedent. 2. Give an example of a valid, constructive, hypothetical syllogism, and convert this into a valid, destructive, hypothetical syllogism. 3. Prove that affirming the consequent, in a hypothetical syllogism, does not affirm the antecedent. 4. Give an example of an invalid, destructive, hypothetical syllogism; convert it into a constructive; and then, having changed these hypothetical to categorical syllogisms, expose the fallacies. 5. Explain the validity of the following arguments: <sup>1</sup> "If that is Mansel's Metaphysics, it is the text-book we shall use. It is the text-book we shall use. Therefore it is Mansel's Metaphysics." <sup>2</sup> "If A understands Logic, he will pass the examination. He does not understand Logic. Therefore he will not pass the examination." 6. Give an example of a disjunctive syllogism of the *modus ponens*, and change this to a hypothetical syllogism. 7. A is B, or C is D, or E is F, or G is H; but either A is B, or G is H: draw the conclusion. 8. If your opponent affirms that C is not D, place him in such a dilemma that he cannot escape unless C is D. 9. If A is B, C is D; if E is F, G is H. Either A is B or G is not H: what follows? 10. Give the differences between the Progressive and the Regressive Sorites.

V. — Detect, name, and expose the following fallacies: 1. "There will be war, because war is inevitable." 2. "Are you yourself? Yes. Are you yourself when you have lost your consciousness? No. Are you conscious of having failed in Logic the first Monday after the recess? No. Then you have lost your consciousness and are not yourself." 3. "Do you believe 'cramming' does you any good?" (If the answer is yes or no, what follows?) 4. "A Sophomore meeting a Freshman says, 'If you will utter a proposition that is incontrovertibly true, I will not haze you.' 'You will haze me,' says the Freshman." (State clearly the dilemma in which the Sophomore is, and if he cannot escape from it, why he cannot.) 5. "The best poetry is not the product of extensive knowledge and of close imitation of the great-masters. Therefore modern poetry is not the best." — Give an example of the following fallacies: 6. Undistributed Middle. 7. Illicit Process. 8. Ambiguous Middle. 9. *Ignoratio Elenchi*.

## PHILOSOPHY.

*(Final Examination, June, 1872.)*

1. Define the two branches of Metaphysics.
2. What are the two principal objections to founding a Philosophy of Being at a point above Consciousness?
3. Omitting the division of external and of internal intuition, divide logically the Philosophy of Consciousness.
4. Distinguish intuition from thought; external intuition from internal intuition; conception, judgment, and reasoning from each other; and then show that all these distinctions are logical, and not psychological.
5. Illustrate by a cognition, a feeling, and a volition, the doctrine that consciousness is a relation of self to its modes.
6. Why is time a "form" of every act of consciousness? Why is space a "form" of external intuition? Why are unity, plurality, and totality "forms" of thought?
7. What is the "matter" of external intuition? of internal intuition? and of conception, of judgment, and of reasoning?
8. Taking your examples from the sense of sight and of smell, present Mansel's doctrine of "sensation proper" and "perception proper" in respect to — 1. What constitutes them; 2. Their reciprocal relation; 3. The qualities of "body."
9. Consider the question — Whether we get our knowledge of extra-organic body by the muscular sense, or by the locomotive faculty.
10. Consider the question — Whether or not we are conscious of a material substratum (*substance*).
11. If we are not conscious of a material substance, what fact of sensitive consciousness and what association derived from self-consciousness will explain the difference denoted by the use of abstract and concrete terms?
12. Distinguish an individual, as the ultimate object of all consciousness, from an individual out of relation to an act of consciousness; and then define a concept in reference to individuals and attributes.
13. Give the process of forming a concept, and the process of conception after the concept is formed; and then distinguish intuitive from symbolical conception.
14. Distinguish analytical from synthetical judgments, and show how the latter are possible.
15. Explain the necessity of geometrical judgments.
16. Show the operation of the laws of thought in the syllogisms, Barbara and Celarent.
17. Give and illustrate the three laws of association of ideas; and explain the following fact:  $x$  suggests  $z$ , though there is no apparent connection between  $x$  and  $z$ .
18. Show that imagination, memory, and hope are psychologically the same.



19. How can you make consistent these two doctrines — that time is an *a priori* condition of the consciousness of an event, and that the consciousness of time depends on the consciousness of a succession of events?

20. Explain the necessity of the following judgment: Every event has some cause.

### Elective Philosophy (see page 59).

#### MILL ON HAMILTON.

(*Final Examination, June, 1872.*)

1. Give a precise definition of Philosophy, so as to distinguish it from the special sciences. Show how far it is a *pure* science, and what division of the subject follows as a consequence of the definition. Define Knowledge, and distinguish it from Opinion or Belief.

2. State and criticise Hamilton's Philosophy of the Conditioned, showing which are the two extremes between which all that is conceivable is placed. Explain the three terms, — the Unconditioned, the Infinite, and the Absolute; show their relation to each other, and prove that neither of them, as ideas or realities, can be grasped by the human mind.

3. Enumerate and explain the ten or eleven different sorts of Causes, or different meanings of the word *Cause*; pointing out particularly the four which were distinguished by Aristotle.

4. Explain the phrase "Elements of Knowledge." Show what are the occasions and circumstances under which the ideas of Space, Time, Resistance, the Ego, and the Non-Ego first come distinctly before the mind.

5. How does Mill attempt to show that we *can* have a distinct and positive conception of Infinite Space and Infinite Number? Confute his arguments, and show that his attempt is a failure. What is the mathematician's "Infinite"?

6. Distinguish the introspective from the psychological method of studying the facts of Psychology and the problems of Metaphysics. What are Mill's reasons for preferring the latter method, and why are these reasons insufficient?

7. Explain the difference between Natural Realism and Hypothetical Dualism, and consider some of the objections made to each of these theories. Enumerate the several forms of the Unitarian or Monist theory. What is Hamilton's doctrine of the Duality of Consciousness? What are the three forms of the doctrine of Mediate or Representative Perception of external objects?

8. Give a brief outline of Berkeley's Theory of Vision, and show how this theory naturally leads to his doctrine of Idealism, or the Non-Existence of Matter.

9. Explain the doctrines of Realism, Nominalism, and Conceptualism, and give the arguments in favor of Conceptualism. Distinguish *individual* from *general* abstract notions. Prove that what is unimagi-

nable is not therefore necessarily unthinkable, and that *relations* are conceived by the understanding as general.

10. Prove that both Time and Space belong to all individual presentations or perceptions by Sense, but not to any abstract general notions or concepts. Prove that a relation cannot be perceived by sense alone. How does language help thought, in the case of concepts?

11. Explain the two quantities of Extension and Intension, and their relation to each other. Mill says that all Judgment and Reasoning are in which of these two quantities? Refute this doctrine. What portion of a syllogism must always be a judgment in Extension?

12. Distinguish the Matter from the Form of Thought. What is meant by the necessary Laws of Thought?

13. Explain Hamilton's doctrine of the Freedom of the Will, and Mill's doctrine of Necessity, with the arguments in favor of each. Prove that Mill does not sufficiently account for our feeling of moral responsibility, and fails to justify punishment for wrong-doing.

### Political Science (see page 58).

#### POLITICAL ECONOMY.

(*Final Examination, February, 1872.*)

1. What is the difference between price and value?
2. What is capital, and whence is it derived?
3. Is a legal tender note of the United States *money*? If not, then what is it?
4. What effect has an excessive issue of paper currency upon prices?
5. In an estimate of public wealth, what kinds of individual wealth are excluded, and why?
6. Why is the rate of interest high in a newly settled Western State?
7. What determines the rate of wages?
8. What was the theory of Malthus as to the growth of population?
9. What effect has the introduction of machinery upon the rate of wages?
10. What is rent, and how does it depend upon the cost of production?
11. In the trade between nations, how is the transmission of gold and silver for the most part avoided?
12. If there is a scarcity of some article of which there are several qualities of different prices, will the cheapest or the dearest quality rise most, and why?
13. What is the difference between direct and indirect taxation, and what are their respective advantages?
14. Why is a tax on raw materials a bad tax?
15. How does our national debt differ in form from the English, and what advantage has either form?

## CONSTITUTION OF THE UNITED STATES.

(Final Examination, June, 1872.)

1. When was the Confederation formed, and what defects in it led to the formation of the Constitution ?
2. How did the Confederation differ from the Constitution, in respect to the legislative power, the executive, the judiciary ?
3. By what sovereign power was the Constitution established, and by what clauses in the document is this shown ?
4. What changes have Amendments XIV. and XV. made in the basis of representation in Congress ?
5. How is the Senate composed, and what were the reasons for establishing it on that plan ?
6. The legislature of the State of M., in establishing the congressional districts, has provided that every representative must be a resident of the district from which he is chosen. Suppose District I. elects as representative a resident of District II. : is his election valid or not, and why ?
7. What are direct taxes under the Constitution of the United States, and how must they now be apportioned ?
8. Suppose the President is impeached : who impeaches him, who tries him, who presides at the trial, who discharges the duties of his office while he is on trial, for what offences is he impeachable, and to what punishment is he subject ?
9. What is provided by the Constitution as to making paper a legal tender for debt, either by State or national legislation ?
10. What is an *ex post facto* law, and what are the provisions of the Constitution as to such laws ?
11. The State of N. H. attempted to set aside a charter, which it had formerly granted without reserving any right of amendment or repeal. What provision in the Constitution protected the charter, and does any similar provision limit the power of Congress ?
12. What are the provisions of the Constitution as to treason and the punishment of treason ?
13. When the Constitution says the judicial power shall extend to certain specified cases, as *e. g.*, between citizens of different States, is the jurisdiction thus granted exclusive or concurrent with that of the State Courts ?
14. Is bankruptcy within the jurisdiction of the States, or that of the United States ?
15. Does Amendment X., relating to reserved powers, abridge any grant of power made by the Constitution ? If not, what is its effect ?
16. How can the Constitution be amended, and is there now any exception to the power of amendment ?

**Rhetoric** (see page 58).*(Final Examination, February, 1872.)*

1. Distinguish by careful definitions direct and indirect arguments: probable and demonstrative arguments.
2. Distinguish by definitions and by examples the Argument from Sign and that from Cause to Effect.
3. Wherein consists the principal force of Concurrent Testimony? What are the grounds upon which we hold most of our opinions on matters of science?
4. What is an Argument from Induction? How ought Analogy to be distinguished from *direct* resemblance?
5. State the presumptions for and against *experts* in any science. When should *a priori* arguments have precedence of others?
6. Show that unanswerable arguments may exist on both sides of a question. Show the danger of using arguments in controversy which are not fully intelligible to the persons addressed.
7. What difference is there between the Feelings and the Intellectual Powers with respect to the control of the Will? What is the process by which a man could excite in himself (for instance) the sentiment of Gratitude to a friend?
8. Show that even a sophistical reasoner can seldom dispense with Perspicuity. What are those kinds of Oratory in which Perspicuity is of slight importance?
9. What are the vulgar misconceptions with regard to men of experience, "practical men," as compared with theorists? What is the real objection to Prolivity, and what is the danger of extreme Conciseness?
10. To what extent have words an imitative power of aptitude? What is a Period, and why has this form of sentence an advantage in point of energy?
11. Give the arguments in favor of the Natural Style of Elocution, with a statement of the difficulties to be encountered by one adopting it.

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**SENIORS.****Philosophy 1** (see page 61).

DESCARTES, SPINOZA, MALEBRANCHE, AND KANT.

*(Selections from Private Examinations, of one hour each, held in December, 1871, January, February, and March, 1872.)*

1. What are the Conditions and Limits of Human Knowledge? Explain the three terms, — the Unconditioned, the Infinite, and the Absolute; show their relation to each other, and prove that neither of the three can be fully grasped by the mind.

2. What are the arguments in favor of provisional or methodical Doubt, and wherein is it distinguished from ordinary scepticism? Give the Cartesian definition of Substance.

3. State and criticise the two or three different forms of the Cartesian argument for the being of a God. How far is Descartes justly chargeable with reasoning in a circle?

4. Define Metaphysical Philosophy; Knowledge; Pure Thought. What are the divisions of Philosophy, or to what separate heads may all its questions be reduced?

5. Give a brief summary of the arguments in favor of the doctrine of Innate Ideas.

6. What is the Cartesian doctrine respecting the nature of matter, of mind, and of their relations to each other? Explain the phrases *substantial forms* and *accidental forms*, as they were used by the Schoolmen.

7. State and disprove Cousin's doctrine of the Impersonality of Reason. What is the Cartesian rule of evidence, or unfailing criterion of true Ideas?

8. Give Spinoza's definitions of Substance, Attribute, Mode, Freedom, God. Distinguish the Absolutely Infinite from the Infinite *in suo genere*, and illustrate the distinction from Geometry.

9. State and confute Spinoza's proof that there cannot be more than one Substance. What is *Soul*, and what is *Body*, according to his system? How does he explain the harmony of action between the two?

10. State and criticise Malebranche's doctrine of the vision of all things in God. What is his doctrine of "Intelligible Extension," and how do we derive from it our ideas of Finite Extension?

11. Why ought we to say that God is justice, is holiness, etc., rather than God is just, is holy, etc.?

12. Explain the meaning of Kant's phraseology in these expressions:

a. Synthetical judgments *a priori*.

b. Critique of Pure Reason.

c. Transcendental æsthetic and transcendental logic.

d. Intuition and Conception.

e. The manifold of intuition reduced to the synthetical unity of apprehension.

13. What are the two tests, or criteria, of *a priori* cognitions as distinguished from empirical cognitions? What is it to *construct* a concept? Show how the first truths of Arithmetic and Geometry are obtained by Construction and Intuition, and not by Reasoning or Deduction.

14. Enumerate the Categories, and trace their derivation from the logical Forms of Thought from which they rise. Explain the phrase "Deduction of the Categories." Distinguish *empirical* from *pure* Consciousness.

15. What synthesis must take place in every act of cognition, and how is every judgment a synthesis? Prove that the synthetical unity of apprehension is possible only through the transcendental unity of apperception, or self-consciousness.

16. Prove that no object of experience can be *constructed*, — that is, that no experience is possible, — without applying the Categories, thus proving such application to be valid or legitimate.

17. Enumerate some of the *a priori* fundamental truths of *pure* Physics; prove that they cannot be learned from experience; trace them to their origin in the Categories and the Schemata.

### SCHOPENHAUER, LEIBNITZ, KANT, AND HEGEL.

(Final Examination, June, 1872.)

1. Explain briefly what Schopenhauer means by the title of his book, "The World as Representation and Will." What are the two constituents or factors of the "Representation"? Is either of these a Cause of the other, or what is their relation to each other? How does he prove his doctrine of Pessimism? What are the characteristics of Art, and wherein does it differ from Science?

2. What are the three axiomatic principles on which Leibnitz bases his whole philosophy? Wherein does his conception of Substance differ from that of Descartes? Explain briefly his theory of Monads, of Pre-established Harmony, and of Optimism.

3. How does Hegel disprove the reality of the Particular, the Individual, and the Concrete, and show that they are only the Abstract and the Universal in disguise? What principles in regard to Thought and Being, One and All, are presupposed as the foundation of Hegelianism?

4. What is the peculiar logic of Hegelianism, or the immanent dialectic of Pure Thought? Give illustrations of it. Give four or five of the earlier trichotomies, whereby Hegel, beginning with what is most abstract and universal, proceeds to create the universe in idea, through this immanent dialectic.

5. Describe briefly the three cognitive faculties of the mind, and the peculiar functions of each. Distinguish the Matter and the Form of Knowledge. What is *Pure Reason*, *Pure Thought*, etc.? What is the relation of Knowledge to Experience? What are "synthetical judgments *a priori*," and why are they so called?

6. Prove that both Space and Time are *a priori* and subjective in character, and that they are intuitions, and not concepts. Show how Arithmetic is a science of Time, as Geometry is of Space. What does Kant mean by asserting the *empirical reality*, and also the *transcendental ideality*, of Time and Space? Prove that he has no good ground, even on his own principles, for denying the objective validity of our cognition of either. What is meant by saying that Time and Space are *principia individuationis*?

7. Analyze particularly the three Categories in the table of Relation, showing how each of them contributes to make physical science possible. Enumerate some of the *a priori* fundamental truths of *pure* Physics, and prove that they cannot be learned from experience.

8. What is Kant's position in the dispute as to the relative authority of the Understanding and the Faculty of Sense: which is so far the

superior as to furnish the tribunal or test by which to try the conclusions of the other? How does he refute the doctrines of the Empiricists, and of the Dogmatists, and how far does he accept the conclusions of either?

9. How do we schematize Quantity and Quality (the first two tables of the Categories), and what are the *a priori* fundamental principles of this schematization? What is the schema of Substance, of Cause, of Reciprocity, in the third table, and what is the fundamental principle of each? What other and better schema than the one proposed by Kant can be given for the Category of "Substance and Attribute"?

10. What are the three Transcendental Ideas (forms of the Unconditioned) of Pure Reason? From what logical forms are they derived? How are they so derived?

11. Take the relations of space indicated by the words Above and Below, Behind and Before, Right and Left, Top and Bottom, Inside and Outside; and show the effect, upon the other pairs, of interchanging the two which constitute any one pair. Prove that the general truths thus obtained are not generalized from previous observations, nor inferred by reasoning, but are immediately intuited from an individual construction.

12. Prove that *relations* of objects to each other cannot be intuited by Sense, but must be thought by the Understanding; and hence that they are not particular, but general; not intuitions, but concepts.

### Philosophy 2 (see page 61).

#### SCHOPENHAUER.

(Final Examination, June, 1872.)

1. Mention some of the *prædicabilia a priori* of Time, Space, and Matter, pointing out the harmony, symmetry, or contrast between these three in each case.

2. What does Schopenhauer mean by the *intellectual* nature of Intuition? Why does he maintain that *Verstand* is one of the intellectual functions even of brutes? Do the senses give us perceptions? Can the principle of Causality be derived from observation of the external world?

3. Wherein is the essential defect of the mind of brutes, and hence what is the peculiarity of their memory?

4. Give a brief synopsis of Schopenhauer's development of the four-fold root of the Principle of Sufficient Reason, showing thereby that it is applicable to *all* phenomena, but *only* to phenomena.

5. What peculiar reasons are given by him for denying the reality (the objective validity) of Time and Space?

6. What, according to Schopenhauer, is the *ding an sich*, or "being *per se*"? Wherein does it differ from all phenomena or representations, and in what peculiar way is it made known to us? Why is it necessary to believe that there must be a *ding an sich*, independent of, and apart from the representation?

7. In what respect is every man's own body an object to him unlike

every other object, and in what respect similar to every other object ? In what two entirely different ways is it made known to him ?

8. In what different manner do we know the Will from that in which we know all other things ? What other affections or manifestations of mind, besides the mere power of volition, are considered as Will ?

9. What is the relation of the Intellect to the Will, and what is meant by the primacy of the Will in self-consciousness ?

10. From what reasons of analogy does Schopenhauer maintain that all other forms of matter, besides a man's own body, and all physical forces, etc., are nothing but what we call Will ? Enumerate some of the principal stages or degrees of the objectivation of the Will ?

11. How does he prove that Multiplicity or Plurality does not belong to the *ding an sich* ? Illustrate some of the weaknesses and defects of the Intellect, as contrasted with the excellences of the Will. What effect has great excitement of the Will on the Intellect ?

12. Is Will necessarily self-conscious, or determined by motives ? What is the relation of Will to Power or Force, — generic or specific ? Is the *Soul* that which is eternal and indestructible in man ? Of what is the *Soul* a compound ? Why has man no reason to fear death ?

13. Define the Platonic Idea, and Kant's *ding an sich*, showing how far they agree with each other. What forms of cognitive representation are discarded by each ? What one of these forms is retained by one of them, though not by the other ?

14. How only can the Subject rise to a vision of the eternal Ideas ? What change takes place both in the Object and the Subject through æsthetic contemplation of the former ?

15. What are the characteristics of Art, and wherein does it differ from Science ? Wherein does a man of genius differ from an ordinary man ? Why does the former dislike Mathematics ? Why is he often suspected of insanity ?

### Moral Philosophy (see page 61).

(*Special Examination, February, 1872.*)

1. Enumerate and describe the springs of Action.
2. What is the foundation of Virtue ?
3. Define Liberty and Necessity as applied to moral agents, and state the chief arguments for each of these theories.
4. How much is included in the duty of Self-Conservation ?
5. What constitutes a Promise, and under what circumstances does a Promise cease to be binding ?
6. What arguments can be urged for the Immortality of the Soul independently of revelation ?
7. Describe the Ethics of Stoicism and of Epicureanism, and write what you remember concerning the founders and the distinguished adherents of those systems respectively.



8. What is Paley's definition of Virtue, and in what respects is it false or deficient?
  9. What reasons have we for believing the historical records of Christianity to be genuine and authentic?
  10. What are the distinguishing features of the Ethics of Christianity?
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(Final Examination, June, 1872.)

1. Give an account of Cicero's moral character, his philosophical affinities, and the circumstances under which he wrote the *De Officiis*.
  2. What, according to Cicero, are the four cardinal Virtues?
  3. Describe the ground covered by each of these four Virtues.
  4. Define *honestum*, *decorum*, and *utile*.
  5. What ground was taken with regard to the *Utile* by the Stoics and the Peripatetics respectively?
  6. Show how the *Utile* is contingent on one's relations with his fellow-men.
  7. Prove the identity of the *Honestum* and the *Utile*.
  8. What are the arguments urged, on each side, in the case of the Alexandrian wheat-merchant?
  9. What arguments might have been urged in the case of Regulus, in favor of his remaining at Rome, and how should they have been answered?
  10. What sophistry do you find in Cicero's statement concerning the obligation of an oath?
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**Political Economy** (see page 61).

(Special Examination, December, 1871.)

1. What is probably the most important advantage obtained by the division of labor?
2. Define wealth.
3. Define money.
4. What is the difference between value and price?
5. What is the *real* price of an article, and by what is it measured?
6. What is the *natural* price?
7. What is the *market* price, and what is its relation to the natural price?
8. In a country where gold and silver coin are both used, what effect will a permanent increase in the supply of either metal have upon the currency? What effect upon prices?
9. Can these effects be avoided or mitigated, and if so, by what expedient?

10. What is the effect upon profit, rent, and wages respectively, when a country is advancing? when it is stationary? and when it is declining?

11. What are the causes of the inequalities of wages in different employments?

12. In what circumstances will the advantages or disadvantages of different employments be equalized?

13. What is the effect of gratuitous education for any employment?

14. What is rent?

15. State if you can some of the different theories of rent.

16. When the mines of Potosi were opened, many mines in Europe were given up. By what was the price of silver thenceforward determined, and what was the measure of rent for the mines?

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*(Special Examination, January, 1872.)*

1. What is the distinction between wealth and capital?

2. What is the difference between fixed and circulating capitals? and to which does money belong?

3. When either of the precious metals becomes more abundant, and the remedy of over-valuation and limitation of the right of tender is to be applied, does it make any difference which metal is over-valued, and if so, what difference?

4. On what basis is the Bank of England established?

5. How does Smith distinguish between productive laborers and unproductive?

6. Explain the paradox that "what is annually saved is as regularly consumed as what is annually spent."

7. What is the error of Locke and Montesquieu as to the supposed connection between the depreciation of value of gold and silver and the lowering of the rate of interest?

8. What is Adam Smith's view as to the point at which the rate of interest should be fixed by law, and what is his mistake?

9. How can a paper currency be kept at par with gold?

10. What was the theory of the balance of trade, and in what respect was it fallacious?

11. Why do manufactures often flourish while a nation is carrying on a foreign war?

12. What was the theory of the agricultural system, and what was its great error?

13. State the general objection to any system for the extraordinary encouragement of a particular branch of industry, and such partial or complete answers to that objection as may occur to you.

14. What is the chronological relation of the several systems of Political Economy?

15. Consider the following passage from a Report of the Comptroller of the Currency, made in December, 1871:—

"The tenacity with which the Pacific States adhere to a gold currency is quite notable. Whether it is equally praiseworthy is another thing. It is not clear that those States derive any substantial benefit from the course they have pursued, and it is beginning to be manifest that the United States are not at all benefited by it. The substitution of a paper currency in California and the other gold-producing States for their present hard money would probably set free for the use of the government and the whole country some thirty or forty millions of gold, and, at the same time, provide those communities with a more economical, active, and accommodating circulating medium."

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*(Final Examination, June, 1872.)*

1. How does Mr. Mill distinguish between productive labor and unproductive? and under which head is mental labor (as, *e. g.*, that of a philosopher or inventor) to be placed?
2. If a nation has to meet extraordinary expenses, as in time of war, is it better to raise the amount by loan, or by taxes within the year? and why?
3. What is the relation between profits and the cost of labor?
4. What is the law which determines the value of that class of commodities of which the supply can be indefinitely increased without increase of cost?
5. Why are both profits and wages high in a new and fertile country?
6. If a fall in profits takes place, are manufactured articles or agricultural produce most likely to fall in value, and why?
7. Why does Mr. Mill think a general over-supply of commodities impossible?
8. Suppose a paper currency to be issued, of which every note represents actual property. Can it be depreciated, and why?
9. Can two countries exchange products if in one the general cost of production is higher than in the other, and why?
10. What is the general law determining the values at which a country exchanges its produce with other countries?
11. What effect is produced upon international trade by an improvement which introduces a new article of export?
12. What effect is produced upon rent, profits, and wages respectively, by a great improvement in agriculture?
13. What reasons are there in theory for exempting from income tax so much of income as is saved and invested?
14. If a tax upon agricultural produce is of long standing, on whom does it finally fall, and why?
15. Under what circumstances does Mr. Mill think that protecting duties can properly be levied?

## IV.—HISTORY.

### SOPHOMORES.

**Roman History** (see page 56).

(*Final Examination, February, 1872.*)

1. Draw a rough map of Italy, showing its most important physical features and political divisions.

2. State very briefly (with dates) the circumstances under which those political divisions came respectively under the power of Rome.

3. Mention the foreign possessions of Rome in the year 50 B. C., and state in the case of each, very briefly (with dates), following the chronological order of acquisition, the circumstances under which it became subject to Rome.

4. What important events in the history of Rome occur in the following decades, respectively, — B. C., 450-440, 400-300, 350-340, 300-290, 250-240, 200-190, 150-140, 100-90, 50-40?

5. State very briefly the principal features of the Roman Constitution under the Kings, and in what points the Constitution of the Republic before the creation of *Tribuni Plebis* differed from it.

6. State very briefly (with dates) the most important changes in the Roman Constitution from the time of the creation of the Tribunate to the Second Punic War.

7. In the time of Tiberius Gracchus what were the relations to one another of Magistrates, Senate, and Comitia?

8. Mention (with dates), and explain the significance of, any important events that prepared the way for monarchy in the interval between Tiberius Gracchus and Augustus.

9. What was the nature of the monarchy of Augustus?

### JUNIORS.

**Mediæval History** (see page 59).

(*Final Examination, June, 1872.*)

**MAP. FRANCE AND GERMANY.** Mark the provinces:

(1) Picardy. (2) Navarre. (3) Champagne. (4) Poitou. (5) Gascony. (6) Anjou. (7) Provence. (8) Maine. (9) Armagnac. (10) Guienne. (11) Arelat, or the Kingdom of Burgundy. (12) Duchy of Burgundy. (13) Franche Comté. (14) Franconia. (15) Carinthia. (16) Alsace. (17) Limousin. (18) Westphalia. (19) Hainault. (20) Lausitz. (21) Thuringia.

**CITIES AND PLACES.** — (a) Treves. (b) Mainz. (c) Angers. (d) Regensburg, or Ratisbon. (e) Strasburg. (f) Meissen. (g) Ghent.

(h) Brunswick. (i) Speier. (k) Bamberg. (l) Bâle. (m) Rochelle. (n) Avignon. (o) Laon. (p) Albi. (q) Peronne. (r) Beziers. (s) Toul. (t) Bordeaux. (u) Hohenstauffen. (v) Hohenzollern. (x) Hapsburg.

EMPIRE. — Name the emperors between 900 and 962. Give a table of Henry the Fowler's children and grandchildren. 3. Giselbert of Lorraine. 4. Godfrey of Lorraine. 5. When were Bavaria and Saxony first given to the Welfs? 6. Circumstances of the imperial election of 1125. 7. When and for what occasion was Austria made a duchy? 8. Peter della Vineia.

CHURCH — 9. What title did the Church claim to territorial sovereignty? 10. Pope Formosus. 11. Hildebrandine Popes; 1050–1100. 12. The crusades and the principal persons concerned in each. 13. The famous bulls of Boniface VIII. 14. Constitution of the Cardinals' College. 15. The great monastic and mendicant orders. 16. Pope John XXIII.

FRANCE. — 17. Capetian kings from 888–987. 18. When and how did the Duchy of Burgundy first come to the Capetian family? 19. The Duchy of Normandy; when created, and when annexed to the domain? 20. When was Poitou taken from England? 21. Toulouse; when obtained by the crown? 22. Table showing Edward III.'s claim to the crown. 23. The Angevine dynasties of Naples. 24. The Constable d'Armagnac.

### Mediæval Institutions (see page 59).

(Final Examination, June, 1872.)

#### GERMAN LAW :

1. Mannitio and Bannitio.
2. Inquisitio per testes.
3. Reipus.
4. Scabini.
5. The Alod; Salic law *de Alodis*.
6. Salic law *de adfathamire*.
7. Judicial reforms of Charlemagne.
8. The Capitulary of Kiersy.

#### ROMAN LAW :

9. Nexum.
10. Res mancipi, and Res nec mancipi.
11. Manus.
12. Universitas juris.
13. Roman forms of marriage.
14. Early forms of testament.
15. Agnates and cognates.
16. Origin of primogeniture.

#### FEUDAL LAW :

17. Essential point of difference between German and French feudalism.
18. The German *Heerschild*.

19. The Golden Bull.
20. Reform of Louis le Gros.
21. Reform of Philip Augustus.
22. Explain why "*Fief et justice n'ont rien de commun.*"
23. What courts of justice were there in feudal France?
24. What was the feudal mode of proof?

## SENIORS.

**English History** (see page 61).

(*Final Examination, June, 1872.*)

**MAP OF ENGLAND AND WALES**, indicating the counties, rivers, and principal battle-fields.

1. What was folcland? bocland? 2. What was the hundred? the tithing? the wapentake? the mansus? 3. What judicial powers had the Saxon king? 4. What was an ealdorman? a thane? a twelfhyndman? a twohyndman? a gerefa? a socman? 5. What was sac and soc? told and thiem? 6. What were the functions of the Norman sheriff? 7. What was the exchequer? 8. What was a writ of right? 9. What were the pleas of the crown? 10. What was the origin of scutage? 11. What were the disputed points of the Constitution of Clarendon? 12. What was the statute of Mortmain? the statute de Donis?

13. What were the kingdoms of the Heptarchy? 14. Penda and Offa? 15. Eadric Streona? 16. The respective claims of Harold and William to the crown? 17. The respective claims of Stephen and Henry II. to the crown? 18. King Richard Cœur de Lion's relations with Tancred of Sicily? 19. King John's loss of Normandy: by forfeiture or conquest? 20. When and under what circumstances was the first Parliament held? 21. What legal rights had Edward I. on Scotland? 22. Roger Mortimer? 23. Table showing the respective claims of Henry IV., Edward IV., Henry VI., and the Duke of Buckingham to the crown. 24. Lady Jane Grey?

**Modern History** (see page 61).

SEVENTEENTH CENTURY AND FIRST HALF OF THE EIGHTEENTH.

(*Final Examination, June, 1872.*)

N. B. A number marked with an asterisk may be substituted for the same number without it.

I. Date the Petition of Right and the Declaration of Right. Analyze them, and show that the latter "was indissolubly connected with the revolution-settlement as its motive and its condition." In what sense is the remark [of Burke] true, that the Revolution was not a revolution made, but a revolution prevented?

I.\* Compare the movement of the Fronde (as to its purposes, conduct, and result) with the nearly contemporary movement in England.

II. The relations of the Scots to the English from 1638 to 1652, with dates.

III. What part did Pym, Falkland, Essex, Fairfax, respectively play in the reign of Charles I.?

IV. Define or describe six of the following: (1) Presbyterianism. (2) Independency. (3) Erastianism. (4) Fifth Monarchy. (5) Solemn League and Covenant. (6) Westminster Assembly. (7) Non-jurors.

IV.\* (1) The Corporation Act. (2) The Act of Uniformity, with date. (3) The Conventicle Act. (4) The Five Mile Act. (5) The Test Act. (6) The Act of Toleration.

V. What is meant by (1) Ship Money? (2) the Grand Remonstrance? (3) the attempt to arrest the Five Members? (4) the Instrument of Government? (5) the Humble Petition and Advice? (6) the Exclusion Bills?

V.\* (1) Star Chamber. (2) High Commission. (3) Self-denying Ordinance. (4) Navigation Act. (5) Declaration of Indulgence. (6) Bill of Comprehension. (7) Quo Warranto. — [Take six.]

VI. "England has set us [the French] the example of regicide, of a republic, of a counter-revolution, and finally of a new revolution in favor of a younger branch." Explain this as to England, and give dates. [Note that this revolution has been the last in England.]

VI.\* "That memorable Parliament, which had, during twenty [more than nineteen] eventful years, experienced every variety of fortune, which had triumphed over its sovereign, which had been enslaved and degraded by its servants, which had been twice ejected and twice restored, solemnly decreed its own dissolution." Explain this passage.

VII. "After the lapse of thirty eventful years from the Revocation of the Edict of Nantes, Louis was an infirm and aged man. He had survived his children and grandchildren [not all]. He had been humbled by the victories of Eugene and Marlborough."

"The victories of Eugene and Marlborough, the humiliations of Gertruydenberg, and the concessions of Utrecht were all [in part] among the direct results of the Dragonnades and of the Revocation of the Edict of Nantes." Explain.

VIII. State the genealogical relation (1) of the first Bourbon king of Spain to the first Bourbon king of France; (2) of James II. to Louis XIV.; (3) of George III. to William III. (4) How was the succession of the English throne settled in 1689 and 1701?

VIII.\* (1) The Fifth of November. (2) The Thirtieth of January. (3) The Third of September. (4) The Twenty-ninth of May. (5) The Twenty-fourth of August. — [Take four.]

### Modern History (see page 61).

#### FROM THE MIDDLE OF THE EIGHTEENTH CENTURY.

(Final Examination, June, 1872.)

N. B. A number marked with an asterisk may be substituted for the same number without it, but for no other.

I. Name, with dates, the successive English Ministries from 1783 to 1860, and state very briefly the causes of their retirement from power.

Refer the following measures to the proper Administrations : — The Union of Ireland with Great Britain, the Roman Catholic Relief Act, the first Reform Act, the Municipal Corporations Act, the Repeal of the Corn Laws.

I.\* Name, with dates, the successive Administrations in the United States. Refer the following events and measures to the proper periods : — Jay's Treaty, the Purchase of Louisiana, the Embargo, the Florida Treaty, Nullification in South Carolina, the Fall of the United States Bank, the War with Mexico.

II. Give some account of important measures carried or furthered, in England, by *popular agitation* ; and of the failure of popular agitation to carry other measures.

III. Jefferson's Report, in 1784, on the Western territory ; and the Ordinance, actually adopted in 1787, for the government of the territory northwest of the Ohio.

III.\* English Colonies, as to their form and manner of government. How far are they self-governing ? Note two classes (as to origin) of these colonies. What is the last great change that has taken place in the mode of governing the dependency of India ?

IV. (1) The case of Sommersett, in 1771 ; (2) The Trial of Hardy, in 1794 ; (3) The Trial of Peltier, in 1803 ; (4) the Case of O'Connell, in 1844 ; (5) The Trial of Burr, in 1807 ; (6) The Trial of McLeod, in 1841.

— [Take four.]

V. Name and date the Treaties of the United States with foreign powers, by which territory has been ceded or confirmed to the former, or by which their boundaries have been fixed. Specify the several acquisitions and designate the boundaries.

V.\* Describe the chief *Compromises* in the Constitution and in the Legislation of the United States.

VI. Sir Robert Peel's two Administrations.

VII. "From various causes the community [after the Revolutionary War] was fast becoming divided into two embittered factions of creditors and debtors." Point out these causes, and connect Shays's Rebellion with them.

VII.\* (1) The Stamp Act of 1765 ; (2) The Boston Port Bill of 1774 ; (3) The Alien Act (in England) of 1793 ; (4) The Alien Act (in America) of 1798 ; (5) The Ecclesiastical Titles Bill of 1851 ; (6) Multiplication and Reduction of Statutory Capital Offences in England. — [Take four.]

VIII. The causes and motives of the War of 1812. How were they dealt with in the Treaty of Ghent ?

VIII.\* Compare the *constitutional position* of the Sovereign of Great Britain with that of the President of the United States, and the power of Parliament with that of Congress. — Responsibility under the two governments. — Different structure and action of the two Cabinets.



## V. MATHEMATICS.

## FRESHMEN (see page 55).

## PLANE GEOMETRY.

(Special Examination, November, 1871.)

Leave margins. Number your answers. Write legibly, and without crowding the work.  
A sections omit questions 2 and 5. B sections omit the last three.

1. Define a *proportion*; a *ratio*.  
From the proportion  $M : N = P : Q = R : S$ , deduce the proportion  $M + P + R : N + Q + S = M : N$ , &c.; and from the proportion  $M : N = P : Q$ , deduce the proportion  $M + N : M - N = P + Q : P - Q$ .
2. (a.) Define a *plane*; a *plane figure*; *perimeter*.  
(b.) Mention and define all the different kinds of quadrilaterals.  
(c.) What is the sum of all the interior angles of any polygon equal to? Give proof.
3. (a.) Define a *segment*; an *inscribed angle*; a *regular polygon*; *similar polygons*.  
(b.) What is the measure of the angle formed by two chords which cut each other at the centre of the circle? between the centre and the circumference? at the circumference? by two secants which cut each other without the circle? Draw figure for each case, and prove the last.
4. To divide a given line in extreme and mean ratio. Solve; and then show, without proof, how this problem is made use of in inscribing a regular pentagon or a regular polygon of twenty sides in a given circle.
5. To construct a polygon similar to a given polygon upon a given line.
6. The homologous sides of regular polygons of the same number of sides are to each other as the radii of their circumscribed circles, and also as the radii of their inscribed circles. Prove; and then by means of the corollary (which relates to the perimeters) apply to the case of two circles.  $C$  = what in terms of  $\Pi$  and  $R$ ?
7. To make a square which is to a given square in a given ratio.
8. The perimeter of a regular hexagon is 12. Find.  
(a.) The area of the circumscribed circle.  
(b.) The area of the inscribed circle.  
(c.) The area of a square inscribed in the circumscribed circle.
9. What is the area of a sector? Prove that the small segments which are disregarded are *infinitely small in comparison with* the corresponding infinitely small triangles which are retained. Why is it necessary to prove this?
10. By means of the equation  $C^2 = 2R^2 - R \sqrt{4R^2 - C^2}$ , find the ratio of the circumference of a circle to its diameter *through* the second approximation.  $C$  = what in *third* approximation?
11. The maximum of isoperimetrical polygons of the same number of sides is regular.

TRIGONOMETRY.

(*Special Examination, December, 1871.*)

1. Define the sine, the tangent, and the secant of an acute angle. State, and prove, what lines represent these functions in a circle whose radius is unity.

What is the cosine of  $0^\circ$ ? of  $90^\circ$ ? of  $270^\circ$ ?

In what quadrants is the tangent positive? In what quadrants is it negative?

2. By means of a right triangle, prove the formulæ

$$\sec^2 x = 1 + \tan^2 x \text{ and } \operatorname{cosec}^2 x = 1 + \cot^2 x.$$

[Use the letters  $M$ ,  $N$ , and  $P$ , in the triangle.]

3. Obtain the sine of  $45^\circ$ ; the sine of  $390^\circ$ ; the tangent of  $765^\circ$ .

4. Making use of the formula for the sine and the cosine of the sum of two angles, find all the functions of  $(270^\circ + y)$ .

5. Obtain the functions of the negative of an angle; and compare them with the functions of the angle itself.

6. In a right triangle there are given the hypotenuse 84.32, and one side 37.59. Solve the triangle.

7. In a right triangle there are given an angle  $63^\circ 42'$ , and the opposite side 7.55. Solve the triangle.

8. How may we obtain, *approximately*, the sine or the tangent of a small angle or arc?

Find, by this approximative method, the sine of  $16' 40''$ .

SOLID GEOMETRY.

(*Special Examination, February, 1871.*)

Number your answers. Write legibly, and without crowding your work. The A sections omit questions 1, 2, 5, and 6. The B sections omit question 8 (c) and all thereafter.

1. (a.) Define a solid angle; a hexædron; a right prism; a regular pyramid; a truncated prism; equivalent solids.

(b.) Two parallel lines, comprehended between two parallel planes, are equal.

2. The sum of the plane angles which form a solid angle is always less than four right angles.

3. The section of a pyramid made by a plane parallel to the base is a polygon similar to the base. Prove; and then, by making use of the corollaries to this theorem, prove that two pyramids or cones which have equal bases and equal altitudes are equivalent.

4. (a.) A triangular pyramid is a third part of a triangular prism of the same base and altitude.

(b.) Show briefly how this theorem is made use of in finding the formula to express the solidity of a cone. What is that formula?

5. (a.) What are the *poles of a circle*? Define a small circle; a spherical pyramid; a spherical sector; a lunar surface; a unit of spherical surface.

(b.) State and *prove* the relations which exist between the sides and angles of a spherical triangle and the sides and angles of its polar triangle if the sides and angles of both are expressed in degrees, minutes, etc.

6. If two spherical triangles on the same sphere, or on equal spheres, are equilateral with respect to each other, they are also equiangular with respect to each other.

7. (a.) How is it shown that the surface of a sphere is equivalent to that of *four great circles*? Draw the figure for the theorem on the proof of which your answer immediately depends.

(b.) Find the formula which expresses the solidity of a spherical sector.

8. The length of a perfectly round log of wood is 12 feet and the diameter of each end is 6 feet. Find

(a.) Its solidity.

(b.) The solidity of the greatest right paralleliped that can be cut out of it.

(c.) The convex surface of the greatest right cone which can be cut out of it.

(d.) The solidity of the greatest sphere which can be cut out of it.

(e.) The solidity of another log of wood, *similar* to the first, the greatest sphere that can be cut out of this latter log being equal in volume to *one third the volume* of the greatest sphere that can be cut from the given log.

9. The frustum of a pyramid or cone is equivalent to the sum of certain pyramids or cones; state what pyramids or cones, and then calculate the solidity of the frustum of a cone, taking the required dimensions of any value you please.

10. What is the ratio of the *entire surfaces* of similar polyedrons? of the polyedrons themselves? of the surfaces of spheres? State and *prove*.

11. Of two sides of a spherical triangle, the one which differs most from  $90^\circ$  is opposite the angle which differs most from  $90^\circ$ ; and, conversely, of two angles of a spherical triangle, the one which differs most from  $90^\circ$  is opposite the side which differs most from  $90^\circ$ .

12. How many regular polyedrons are there? Describe them, and explain why there are no more.

13. Compute the volume of a segment cut by two planes from the larger sphere found in Question 8, one of these planes passing one foot above the centre, and the other two feet below it.

### ANALYTICAL GEOMETRY.

(*Special Examination, April, 1872.*)

Formulas for reference:—

$$y = ax + b.$$

$$y - y' = \frac{y' - y''}{a' - a''} (x - x').$$

$$y - y' = a (x - x').$$

$$\tan V = \frac{a' - a}{1 + aa'}.$$

$$D = \sqrt{(x' - x'')^2 + (y' - y'')^2}.$$

1. Obtain the equation of the right line passing through the points (3, -4) and (-2, 0). What angle does this line make with the axis of abscissas? Where does it cut that axis?

2. Obtain the equation of the right line, which cuts the axis of ordinates three units below the origin, and makes an angle whose tangent is -6 with the axis of abscissas. Where does this line cut the axis of abscissas?

What line is represented by the equation  $y + 4 = 0$ ?

3. Taking the formula for the tangent of the angle which two right lines make with each other, show what will be the *relative* values of  $a'$  and  $\alpha$  when the two lines are at right angles.

Give the equations of two lines perpendicular to each other, and also the equations of two lines parallel to each other.

4. Find the distance of the point (3, 2) from the line whose equation is  $2y + x = 1$ .

5. Construct a parabola whose parameter is 8.

Also an ellipse whose latus rectum is 18, and whose fixed ratio is  $\frac{5}{3}$ . Explain the construction of each in full.

6. Define the transverse axis, the conjugate axis, and the eccentricity, of the hyperbola.

Obtain an expression for the eccentricity in terms of the semi-axes.

7. In the ellipse, obtain expressions for

1st. The distance from the focus to the centre.

2d. The focal distances (or distances of the vertices from the focus).

3d. The distance from the centre to the directrix.

8. The general equation of a conic section referred to rectangular axes is

$$(m - x)^2 + (n - y)^2 = e^2 (y \sin \alpha + x \cos \alpha - d)^2.$$

Find the common equation of the ellipse referred to its axes, and in terms of its semi-axes.

## ALGEBRA AND SOLID GEOMETRY.

(Final Examination, June, 1872.)

### SECTION A.

1. (a.) Simplify  $\left(\frac{x^{p+q}}{x^p}\right)^q \div \left(\frac{x^q}{x^{q-p}}\right)^{p-q}$ .

(b.) Solve  $\sqrt{\frac{x}{4} + 3} + \sqrt{\frac{x}{4} - 3} = \sqrt{\frac{2x}{3}}$ .

2. (a.) Find all the roots of the equation

$$ay + 2\sqrt{(y^2 - ay + a^2)} = y^2 + 2a.$$

(b.) Form the equation whose roots are  $m + n$  and  $m - n$ , and prove the formula which you use.

3. A man rows down a stream, which runs at the rate of 4 miles an hour, for a certain distance in 1 hour and 40 minutes. In returning, it takes him 4 hours and 15 minutes to arrive at a point 3 miles short of his starting place. Find the distance he pulled down the stream and the rate of his pulling.

4. Assuming  $m + n : p + q = p - q : m - n$ , prove that the sum

of the greatest and least terms of any proportion is greater than the sum of the other two.

5. (a.) Prove the formula  $s = \frac{fx - a}{f - 1}$

(b.) Prove that every term of the series 1, 2, 4, ... &c. is greater by unity than the sum of all that precede it.

6. If  $b$  is the harmonic mean between  $a$  and  $c$  prove that

$$\frac{1}{b-a} + \frac{1}{b-c} = \frac{1}{a} + \frac{1}{c}$$

7. Out of fourteen consonants and five vowels

(a.) How many different groups of letters, *taken without regard to order*, can be formed, each containing 6 consonants and 2 vowels?

(b.) How many words can be formed each containing 6 consonants and 2 vowels? Explain briefly the principle involved in each solution, and show why the answers are different.

8. Prove that the  $(r+1)^{th}$  term of  $(1+x)^{2r} =$

1. 3. 5. ...  $(2r-1)$ .  $(2x)^r$ .

1. 2. 3. ...  $r$

9. (a.) To transform a given integral from one scale to another.

(b.) Transform 654321 from the duodenary to the septenary scale.

10. If a solid angle is formed by three plane angles the sum of either two of these angles is greater than the third.

11. Prove that a triangular pyramid is a third part of a triangular prism of the same base and altitude, and then carry on a train of reasoning until you find the formula to express the volume of a cone.

12. Each angle of a spherical triangle is greater than the difference between two right angles and the sum of the other two angles.

13. The length of a solid cylinder of iron is 8 feet, and the diameter is 3 feet. Find

(a.) The volume of the greatest sphere that can be cut out of it.

(b.) The diameter of the greatest sphere into which it can be cast, supposing there is no loss in the casting.

### SECTION B.

1. (a.) Divide

$$x^3 + \frac{1}{x^3} - 3 \left( \frac{1}{x^3} - x^2 \right) + 4 \left( x + \frac{1}{x} \right) \text{ by } x + \frac{1}{x}$$

(b.) Find the sixth root of

$$m^6 - 12m^5 + 60m^4 - 160m^3 + 240m^2 - 192m + 64.$$

2. Solve the equations: —

$$\begin{aligned} a. \quad & \begin{cases} x^3 + y^3 = 152. \\ x^2 - xy + y^2 = 19. \end{cases} \\ b. \quad & \begin{cases} x^2 + xy = 66. \\ xy - y^2 = 5. \end{cases} \end{aligned}$$

3. (a.) Show that  $a^{-x} = \frac{1}{a^x}$ .

(b.) Simplify  $\left( \frac{x^{m+n}}{x^n} \right)^m \div \left( \frac{x^n}{x^{n-m}} \right)^{m-n}$

4. Simplify  $\frac{6a^3}{y-1} \sqrt{\frac{4y^3 - 8y^2 + 4y}{3a^8}}$

5. A man rows 30 miles and back in 12 hours, and he finds that he can row 5 miles with the stream in the same time as 3 against it. Find the rate of the stream.

6. What debt can be discharged in a year by weekly payments in arithmetical progression, the first payment being 1 shilling, and the last £5 3s.?

7. Find the sum of the series:  $\sqrt{\frac{1}{2}} - \sqrt{6} + 2\sqrt{15} - \dots$  to 8 terms. Obtain the general formula for solving this problem.

8. Out of 17 soldiers and 5 sailors, how many different parties of 5 can be made, each party consisting of 3 soldiers and 2 sailors?

9. (a.) To find the  $r^{\text{th}}$  or general term of the expansion of  $(x + a)^n$ .

(b.) Expand  $\left(x + 1 - \frac{1}{x}\right)^8$ .

10. If two planes are perpendicular to each other, the line which is drawn in one of the planes perpendicular to their common intersection must be perpendicular to the other plane.

11. The solidity of any parallelopiped is the product of its base by its altitude.

12. Of two sides of a spherical triangle, that is the greater which is opposite the greater angle; and, conversely, of two angles, that is the greater which is opposite the greater side.

13. (a.) Prove that the surface of a sphere is equivalent to four great circles.

(b.) The length of a log of wood is 10 feet, and its diameter is 6 feet. Find its solidity, and then find the surface of the greatest sphere which can be cut out of it.

## TRIGONOMETRY AND ANALYTIC GEOMETRY.

(Final Examination, June, 1872.)

### TRIGONOMETRY.

N. B. — The examination will not extend beyond three hours. Those students who have not finished the Trigonometry at the end of an hour and a half are advised to leave it and take up the Analytic Geometry.

1. Obtain formulas by which, when the sine of an acute angle is known, the cosine, the tangent, and the remaining trigonometric functions can be found.

Find, by these formulas, the functions of an angle whose sine is  $-\frac{1}{2}$ .

2. Write (without proving) the formulas for the sine and the cosine of the sum of two angles; and obtain from them formulas for the sine and the cosine of the *double angle*.

3. Prove the following theorems: —

(a.) The sides of a plane triangle are proportional to the sines of the opposite angles.

(b.) The sum of any two sides of a plane triangle is to their difference

as the tangent of half the sum of the opposite angles is to the tangent of half their difference.

4. Two sides of a plane oblique triangle are 672.3 and 555.9, and the included angle is  $25^{\circ} 16'$ . Solve the triangle.

5. Two sides of a plane oblique triangle are 1.396 and .9881, and the angle opposite the second side is  $32^{\circ} 43'$ . Solve the triangle.

When are there two solutions to this problem? Why? Is the problem ever impossible? If there are two solutions in this example, give both of them.

#### ANALYTIC GEOMETRY.

Formulas for reference:—

$$y - y' = \frac{y' - y''}{x' - x''} (x - x')$$

$$y - y' = a (x - x')$$

$$\tan V = \frac{a' - a}{1 + aa'}$$

$$D = \sqrt{r^2 + r'^2 - 2rr' \cos (\theta - \theta')}$$

1. Obtain the equation of a line passing through the two points  $(-1, 0)$ ,  $(3, -2)$ ; also the equation of a second line perpendicular to the first, cutting the axis of ordinates three units above the origin. Also the equation of a line cutting the axis of abscissas three units to the left of the origin, and making an angle of  $135^{\circ}$  with that axis.

2. Construct an ellipse whose axes are 20 and 12. Determine the numerical values of the eccentricity, the focal distances, the parameter, and the distance from the centre to the directrix.

What is the equation of this curve referred to its axes and in terms of its semi-axes?

3. Construct the curve whose equation is  $3y^2 - x - 12 = 0$ , by determining: first, where the curve cuts the axes; and secondly, at least four other points.

To which class of conic sections does this curve belong? Why?

Will any values given to either of the variable quantities make the value of the other imaginary?

4. The polar coördinates of two points are  $r = 8$ ,  $\theta = 135^{\circ}$ , and  $r' = 3$ ,  $\theta' = 135^{\circ}$ . Plot these two points, and determine the distance between them by the formula.

Of the two following questions only one is required, and each student may make his own choice.

5. Obtain the polar equation of a circle when the pole is in the circumference and the polar axis is a diameter of the circle.

Discuss the equation for different values of  $\theta$  [ $0^{\circ}$ ,  $90^{\circ}$ ,  $270^{\circ}$ ,  $360^{\circ}$ ].

6. The equation of a circle when its centre is at the origin of a system of rectangular coördinates is  $x^2 + y^2 = R^2$ . Find the equation of a line tangent to the circle at any point  $(x', y')$  of the circumference.

Find the equation of a line tangent to the circle whose radius is 10, at the point for which  $x = 5$ .

# SOPHOMORES.

## Course I (see page 57).

### SPHERICAL TRIGONOMETRY.

(*Special Examination, December, 1872.*)

The references are to Seaver's Formulas of Trigonometry.

1. Prove (145).
2. Apply (145) to the polar triangle, and reduce the result to one of the forms (149 - 151).
3. Apply (137) to the *right triangle*, obtaining three of the formulas (175 - 184).
4. In what does the proof of Napier's Rules consist?  
In solving any problem of right triangles, how are the *middle parts* to be determined?  
If  $h$  and  $b$  are given, find the formula for  $B$ . How are the middle parts to be taken in Bowditch's Rules?
5. Prove that in a triangle of which all the parts are less than  $180^\circ$ , *a side which differs more from  $90^\circ$  than another side is in the same quadrant as its opposite angle.*
6. Solve the spherical triangle in which  $A$ ,  $C$ , and  $b$  are given, by dropping a perpendicular.
7. Solve the spherical triangle in which  $A = 227^\circ 10'$ ,  $B = 122^\circ 58'$ ,  $a = 35^\circ 30'$ .
8. The three plane angles which form a trihedral angle are  $100^\circ$ ,  $50^\circ$ , and  $60^\circ$ . Find the mutual inclination of the planes of the two latter angles.
9. Explain the method of applying the formulas of Spherical Trigonometry to *plane triangles*.

### ANALYTIC GEOMETRY.

(*Special Examination, March, 1872.*)

1. *Problem.* To represent  $\sqrt{ab}$  as a *line*, and also as a *square*, by geometric construction,  $a$  and  $b$  being given lines.
2. The formulas for transforming from one oblique system to another, without change of origin being
 
$$x \sin \omega = X \sin (\omega - \alpha) + Y \sin (\omega - \beta),$$

$$y \sin \omega = X \sin \alpha + Y \sin \beta,$$
 deduce from these the formulas for transforming from one rectangular system to another, without change of origin.
3. Given the equation of a curve, and also given the coördinates of a point, how may we ascertain whether the curve does or does not pass through the point?  
If the equation of a curve has no constant term, what does this indicate; and why?



What is the method of finding the points of intersection of two curves given by their equations; and why?

If  $S = 0$  and  $S' = 0$  are the equations of two given curves, what will be true of any curve  $kS + k'S = 0$ ; and why?

What geometric property of a curve is indicated by the degree of its equation?

What are the loci of the following equations, —

$$x = a, \quad x = 0, \quad x^2 = a^2, \quad x^2 = -a^2, \quad y = x, \quad y^2 = x^2, \quad xy = 0?$$

4. Draw the lines represented in rectangular coördinates by the equations

$$(1.) 12x + 5y + 21 = 0. \quad (2.) 3x - 4y - 9 = 0. \quad (3.) 3x + 4y = 0.$$

Find the perpendicular distance of each line from the point  $(2, -3)$ .

Find the equation of a line passing through the same point and perpendicular to line (3).

Find the equations of the bisectors of the angles between lines (1) and (2).

Reduce (1) to the three principal forms

$$y = mx + b, \quad \frac{x}{a} + \frac{y}{b} = 1, \quad x \cos \alpha + y \sin \alpha = p.$$

5. The equation of the perpendiculars drawn to the sides of a triangle from the opposite vertices being of the form

$$(x_1 - x_2)x + (y_1 - y_2)y = \frac{1}{2}(x_1^2 - x_2^2) + \frac{1}{2}(y_1^2 - y_2^2),$$

show that they all pass through one point.

6. Determine and draw the locus of the equation

$$4x^2 + 4y^2 - 44x + 24y + 57 = 0;$$

and find its intercepts on the axes.

7. Define the *Hyperbola*; and find its polar equation referred to the right-hand focus as the pole.

8. Reduce the equation  $Ax^2 + 2Hxy + By^2 = 0$ , discriminate the three cases, and determine the locus in each.

9. What kind of curve is denoted by the equation  $25x^2 + 9y^2 = 16$ ?

Find the values of  $a$ ,  $b$ , and  $c$ , lay them down in a figure, and sketch the curve. Compute its eccentricity.

## ANALYTIC GEOMETRY AND SPHERICS.

(Final Examination, June, 1872.)

Any one question, except the last, may be omitted, and the maximum mark obtained on the remainder of the paper.

1. Given the triangle of which the vertices are  $(x_1, y_1)$ ,  $(x_2, y_2)$ , and  $(x_3, y_3)$ ; find the equation of the perpendicular to one side at its middle point; and show, from the form of the equation, that the three perpendiculars so drawn pass through one point.

2. Given, in the reduction of the equation of the second degree,

$$A' = A \cos^2 \theta + 2H \sin \theta \cos \theta + B \sin^2 \theta,$$

$$B' = A \sin^2 \theta - 2H \sin \theta \cos \theta + B \cos^2 \theta,$$

$$(A - B) \sin 2\theta - 2H \cos 2\theta = 0;$$

find the values of  $A'$  and  $B'$  in terms of  $A$ ,  $B$ , and  $H$ .

*Example.* What kind of curve is represented by the equation,  $13x^2 - 30xy - 27y^2 + 72$ ? Where is the centre? Determine the position and length of the semiaxes, write the reduced equation, and sketch the two sets of coördinate axes and the curve.

3. Find the *Magical Equation* of the tangent to an ellipse. (Give the work and reasoning in full.)

4. Sketch the curve  $9x^2 + 25y^2 = 900$ , and compute its eccentricity.

Find the equations of a *tangent* drawn at that point of the curve for which  $x' = 6$ , and  $y'$  is *negative*; of a *diameter* drawn to the same point; and of the *conjugate* of that diameter.

What is the definition of conjugate diameters of a conic, and what relation do they bear to *supplemental chords*?

5. To draw a tangent to an ellipse at a given point, by either of the methods.

6. To find the equation of an hyperbola referred to its asymptotes.

7. Define the *parabola*, and state the *modification* of this definition which makes it applicable to any conic. How are the three conics distinguished from each other under this definition?

What does the theorem concerning *the angles made by a tangent with the focal radii* become in the case of the *parabola*?

What are the values of  $a$ ,  $b$ ,  $c$ ,  $e$ , and  $\frac{b}{a}$ , in the *parabola* and in the *circle*, when regarded as ellipses?

8. Find, by Napier's and Bowditch's Rules, the formulas for solving a spherical oblique triangle when  $A$ ,  $C$ , and  $b$  are given.

## Course II. (see page 57).

### DIFFERENTIAL CALCULUS, I.

(*Special Examination, December, 1871*).

1. Define the terms *function* and *derivative*. What are the *algebraic functions*?

What is the *distinction*, and what the *relation*, between  $D_x u$  and  $\frac{\Delta u}{\Delta x}$ ? If  $s$  denotes the space traversed by a moving body in the variable time  $t$ , what do  $D_s s$  and  $\frac{\Delta s}{\Delta t}$  denote?

Prove that  $D(a u) = a D u$ .

2. Find the formulas for  $D(u v)$ ,  $D \Pi u$ , and  $D u^n$ .

Show that the last formula holds when  $n$  is *negative*.

3. Define the *natural exponential base*.

4. Find the formula for  $D^a \log x$ .

5. Prove Leibnitz's Theorem for  $D(u v)$ .

6. If  $f x = a^x$ , what is denoted by  $f^2 x$ ? What by  $f^{-1} x$ ? What by  $f^0 x$ ?

7. Show that  $u$  attains a maximum or minimum when its derivative vanishes and is *not* at a maximum or minimum.

8. Differentiate the following functions : —

$$\frac{u^m}{v^n}, \log(u^m v^n), \operatorname{ctn} u, \log \operatorname{ctn} u, \operatorname{ctn}^{-1} u.$$

9. Prove that  $D \log \sqrt{\frac{1 + \sin x}{1 - \sin x}} = \sec x$ .

10. Determine  $(x \log x)$  and  $x^x$  when  $x = 0$ .

11. Find the maxima and minima of  $u = \sin^2 x \cos x$  for values of  $x$  between  $0$  and  $360^\circ$ .

## DIFFERENTIAL CALCULUS, II.

(Special Examination, March, 1872.)

1. Define an *infinitesimal*. When is an infinitesimal said to be of the  $n^{\text{th}}$  order?

Prove that the limit of the ratio of two infinitesimals is not changed when they are replaced by other infinitesimals, whose ratios to the former have respectively *unity* for their limit.

2. When is a function said to be *continuous*?

In the formula

$$\frac{f(x+h) - f(x)}{h} = f'x + \epsilon,$$

is  $\epsilon$ , in general, a function of  $x$ ? Is it a function of  $h$ ? Does  $f'x$  depend on  $h$ ? When must  $\epsilon$  become infinitely small?

Define the differential of a function, and show how the derivative and differential can be represented geometrically.

$$\text{Prove that } \lim \frac{\Delta u}{\Delta v} = 1, \lim \frac{\Delta u}{\Delta v} = \frac{du}{dv}.$$

3. State the conditions under which the following theorem holds; and prove the theorem : —

$$\frac{fX - fx_0}{X - x_0} = f'x_1.$$

To what geometric proposition is this theorem equivalent? (Proof not required.)

4. Prove the theorem for the differentiation of  $y = f(u, v)$ ; and give the general theorem for the differentiation of a function of any number of variables.

5. Prove that a series composed of positive terms is convergent, if, for all terms above a certain rank, the ratio of any term to the preceding is less than a fixed quantity which is less than 1, and also if this ratio tends to a determined limit which is less than 1; and it is divergent, if the above inequalities are reversed.

*Example.* Determine the values of  $x$  for which the following series is convergent, and those for which it is divergent : —

$$1 + \frac{1}{x} + \frac{2}{x^2} + \frac{3}{x^3} + \&c.$$

6. State the conditions under which the following formula holds : —

$$f(x_0 + h) = \frac{h^n}{n!} f^{(n)}(x_0 + \theta h).$$

Prove Taylor's and Maclaurin's Theorems.

7. Develop  $\cos x$  and  $\log(1 - x)$ , according to powers of  $x$ .

8. Prove the formula  $D \arcsin u = \frac{Du}{\sqrt{1-u^2}}$ ; and find

$$D \arcsin \frac{x}{\sqrt{1+x^2}}$$


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### DIFFERENTIAL CALCULUS, III.

(Final Examination, June, 1872.)

1. Find the formulas for differentiating  $a^u$  and  $\cos u$ . Find the formulas for  $D_x y$  from the equation  $F(x, y) = a$ .

Differentiate  $\log \frac{\sqrt{a^2 - x^2}}{x(a^2 + x^2)}$ .

2. Define a *converging series*.

Prove that if the terms of a given series, in which all the terms are positive, are respectively less than those of a second series of positive terms which is known to converge, then the former series also converges.

3. Give a brief demonstration, from Taylor's Theorem, of the rule for obtaining maxima and minima.

4. Define the *mean curvature* of any arc, and find its value in the case of the *circle*.

Define the *radius of curvature* of any curve, and find its formula, in rectangular coördinates, in the form

$$R = \frac{(1 + D_x y^2)^{\frac{3}{2}}}{D_x^2 y}.$$

5. A horse runs at the uniform speed of 30 feet a second on an elliptical course of which the semi-axes are 1600 feet and 900 feet. Compute the rate at which he is approaching the centre of the course or receding from it, at the moment at which his distance from the centre is 1200 feet. Compute also his angular velocity (in degrees per second of time) about the centre, at the same moment. (N. B.  $57.3^\circ =$  the angle of which the arc equals the radius.)

6. Find the formula, in polar coördinates, for the angle made by a curve with the radius-vector, and apply the formula to the logarithmic spiral.

7. What is the geometric definition, and what is the general analytic test, of a *singular point*?

Name the principal properties of the *cycloid*.

## Course III. (see page 57).

## PLANE TRIGONOMETRY (applied.)

(Special Examination, December, 1872.)

1. In a circle whose radius is 3.857 feet is inscribed a regular octagon. Find the length of one of its sides. Find also the area of the octagon.

2. Two objects are in the same horizontal line with the base of a tower, the height of which is 114.7 feet. The angle of depression of the more distant of these objects, as measured at the top of the tower, is  $42^{\circ} 19'$ ; of the other,  $64^{\circ} 46'$ . How far apart are these objects?

3. A cape bears S. W. by W., as seen from a ship, and is 13 miles distant. The ship sails N. N. W., until the cape bears south. How far has the ship sailed?

4. Obtain the formula for the area of a triangle, given two angles and the included side.

To what does the formula reduce, if the triangle is an equilateral one?

5. Two forces, one of 32.85 pounds, the other of 59.46 pounds, act at an angle of  $74^{\circ} 19'$ . Find the intensity of the resultant, and the angle it makes with the first force.

6. Given  $\cos^2 x + \tan^2 x = \frac{3}{2}$ , find the angle  $x$ . [If  $x$  has more than one value, show whether or not both are possible.]

7. Determine the area of a piece of land, of which the sides have the following bearings and lengths: N.  $43^{\circ}$  E, 18.9 chains; E. 2.7 chains; S.  $10^{\circ}$  W., 16.8 chains; N.  $77^{\circ} 30'$  W., 12.9 chains.

8. A ship leaves Cape Cod [Lat.  $42^{\circ} 2' N.$ , Long.  $70^{\circ} 3' W.$ ], and sails due east 147.8 geographical miles. What is the longitude of the place reached?

## SPHERICAL TRIGONOMETRY.

(Special Examination, March, 1872.)

1. In a spherical right triangle, given a side  $167^{\circ} 42' 38''$ , and the opposite angle  $129^{\circ} 18' 14''$ , solve the triangle. If there are two solutions, give both of them.

2. Obtain the formulas used in the previous question, by taking  $C$  equal to  $90^{\circ}$  in the following:—

$$\begin{aligned}\sin A \sin c &= \sin a \sin C, \\ \cot A \sin C &= \sin b \cot a - \cos b \cos C, \\ \cos A &= -B \cos C + \sin B \sin C \cos a.\end{aligned}$$

3. Prove, by means of one of the formulas used in Question 1, that, in a spherical right triangle, an angle and its opposite side are always in the same quadrant.

4. Deduce the two formulas which come from applying the last two formulas given in Question 2 to the polar triangle.

5. Given in a spherical oblique triangle,  $b = 114^\circ 19'$ ,  $c = 24^\circ 47'$ ,  $A = 142^\circ 16'$ , find  $a$  and  $B$  by the formulas:—

$$\begin{aligned}\tan \phi &= \tan b \cos A, \\ \cos a &= \cos (c - \phi) \cos b \sec \phi, \\ \cot B &= \sin (c - \phi) \cot A \operatorname{cosec} \phi.\end{aligned}$$

6. Obtain the first two formulas used in the previous question, by means of the following equations:—

$$\begin{aligned}\cos a &= \cos b \cos c + \sin b \sin c \cos A, \\ k \sin \phi &= \sin b \cos A, \\ k \cos \phi &= \cos b.\end{aligned}$$

7. Given in a spherical oblique triangle,  $B = 22^\circ 48'$ ,  $C = 147^\circ 14'$ ,  $a = 171^\circ 38'$ , find  $A$  by the third formula given in Question 2.

8. Given the formulas:—

$$\begin{aligned}\cos B &= -\cos (A + C) - 2 \sin A \sin C \sin^2 \frac{1}{2} b, \\ \cos x + \cos y &= 2 \cos \frac{1}{2}(x + y) \cos \frac{1}{2}(x - y), \\ S &= \frac{1}{2} (A + B + C).\end{aligned}$$

obtain a formula for  $\sin^2 \frac{1}{2} b$ .

9. Solve the triangle of Question 7 by Napier's Analogies.

10. Obtain formulas for  $b$  and  $A$  in the same triangle by means of Bowditch's Rules. [Draw the perpendicular from  $C$ , and call the two parts into which  $C$  is divided  $\theta$ , and  $C - \theta$ .]

## APPLIED TRIGONOMETRY.

(Final Examination, June, 1872.)

1. A tower is situated on an inclined plane. At a distance of 47 feet from the foot of the tower, measured down the plane, the tower subtends an angle of  $38^\circ 49'$ ; and, at a distance of 96 feet, it subtends an angle of  $26^\circ 42'$ . Find the height of the tower.

2. A ship leaves Cape Cod [Lat.  $42^\circ 2' N$ , Long.  $70^\circ 3' W$ ] and sails N  $10^\circ E$ , 249 miles, and then S  $62^\circ 30' E$ , 642 miles. Find the latitude and longitude reached. [Diff. long. = depart.  $\times$  sec. Mid. Lat.]

3. In a spherical right triangle, one angle is  $101^\circ 14'$ , and the opposite side is  $142^\circ 47'$ . Solve the triangle.

Why are there always two solutions to this problem? Can the problem be solved for any values of the angle and the side, provided they are in the same quadrant and are less than  $180^\circ$ ; or is there still another condition to be fulfilled?

4. Show, by a figure, what is meant by the *astronomical triangle*. State what the three sides of the triangle represent, and *two* of the angles. [The third angle has no special name.]

5. In a spherical oblique triangle, given two sides and an angle opposite one of them, the formulas for finding the third side are:—

$$\begin{aligned}\tan \phi &= \tan b \cos A, \\ \cos \phi' &= \cos \phi \cos a \sec b, \\ c &= \phi \pm \phi' .\end{aligned}$$

Apply these to the astronomical triangle and obtain formulas for finding the latitude of a place, when we have given the altitude of a celestial body ( $h$ ) = its declination ( $d$ ), and its hour-angle ( $t$ ):

6. In latitude (assumed)  $57^{\circ} 22' N$ , at 11h 17m 4s A. M., the altitude of the sun is  $21^{\circ} 14'$ , and its declination is  $10^{\circ} 53' S$ . Find the true latitude by the formula,

$$\cos (L - d) = \sin h + 2 \cos L \cos d \sin^2 \frac{1}{2} t.$$

7. At Cambridge, Lat.  $42^{\circ} 23' N$ , Long. West, in the afternoon, the sun's altitude is  $32^{\circ} 48'$ , and its declination is  $12^{\circ} 19' N$ . The corresponding Greenwich Time is 8h 30m 39s P. M. Find the longitude of Cambridge by the formulas,

$$\begin{aligned} s' &= \frac{1}{2} (L + h + p) \\ \sin^2 \frac{1}{2} t &= \cos s' \sin (s' - h) \sec L \operatorname{cosec} p. \end{aligned}$$

8. What is the sun's *meridian* altitude and bearing, with the data of the preceding question?

9. Deduce the formulas of Question 7 by means of the astronomical triangle, and the formula,

$$\sin^2 \frac{1}{2} A = \frac{\sin (s - b) \sin (s - c)}{\sin b \sin c}$$

## JUNIORS.

### Course I. (see page 59).

#### DIFFERENTIAL CALCULUS, III.

(*Special Examination, December, 1871.*)

1. *Problem.* To find the order of  $\log i$ , when  $i$  is the infinitesimal base.

2. What does the symbol  $(1 + f)$  denote? Under what condition can  $(1 + f)^n$  be developed by the Binomial Theorem? Prove Taylor's Theorem, assuming only the definitions of  $\Delta$ ,  $d$ , and  $D$ .

3. State the conditions under which the theorem

$$fx = x f'(\theta x)$$

holds. State also the generalized form of the theorem, for  $\frac{F_x}{f_x}$ ; and deduce from it the "*Remainder*" of Taylor's Theorem.

4. When are two curves said to have a contact of the  $n^{\text{th}}$  order?

*Problem.* To find the algebraic conditions, in rectangular or oblique coordinates, of a contact of the  $n^{\text{th}}$  order.

5. State the geometric characteristic, and prove the algebraic conditions of a *singular point*. Without discriminating particular cases, state the general algebraic conditions of multiple points of different orders.

6. Develop  $\log (x + h)$  by Taylor's Theorem.

7. Determine the value of  $x^n (\log x)^m$ , when  $x = 0$ .

8. Find the locus of the equation,

$$y^2 = x^4 (1 - x)^3 (1 + x)^2,$$

and examine its multiple points.

9. Prove that if  $x = t + az$ , and  $u$  is any function of  $x$ , then  $D_x u = u'z D_t x$ .

Develop  $x = t + ax^2$ , by the theorem  $x = t + Ft + \frac{1}{2} D_t(Ft)^2 + \&c.$

10. Find, to 8 places of decimals, a root near  $-6$  of the equation  $x^3 - 12x + 132 = 0$ .

## DIFFERENTIAL AND INTEGRAL CALCULUS, IV.

(*Special Examination, March, 1872.*)

1. Reduce  $a^z$ ,  $\sin z$ , and  $\cos z$  to the form  $u + vi$ ; and obtain the principal formulas for the relations between trigonometric and exponential functions.

2. Find the formulas for  $\operatorname{pcos}(z + z')$ ,  $\operatorname{pcos} 2z$ ,  $\operatorname{pcos} \frac{1}{2}z$ , and  $D \operatorname{pcos} z$ .

3. Show that the conditions of a function being monogenic are

$$D_x u = D_y v, D_y u = -D_x v.$$

4. Given a convergent series arranged according to integral positive powers of  $z$ ; show that the series obtained by differentiating the successive terms of the given series is also convergent, and is the derivative of the given series.

5. State the conditions under which a function can be developed in convergent series, according to integral positive powers of  $(z - a)$ , — according to positive and negative integral powers of  $(z - a)$ .

6. Prove that two monodromic functions which have the same zeros and infinities, each to the same degree of multiplicity, can differ only by a constant factor.

7. Express  $\tan z$  in terms of exponential functions by the general method of expressing one singly periodic function in terms of another.

8. Define the *Residual* of a function as an integral, and obtain from this definition the common working formula.

9. Develop  $\cot t$  by residuation.

10. Residuate  $\frac{fz}{t - z}$  relatively to any infinite of the numerator.

## DIFFERENTIAL AND INTEGRAL CALCULUS, V.

(*Final Examination, June, 1872.*)

1. Determine the values of  $(x \log x)$  and  $x^x$ , when  $x = 0$ .

2. Find all the values of  $\sqrt[n]{-1}$ .

3. State and prove the relation which must exist between two synectic functions which have the same zeros and the same infinities, each to the same degree of multiplicity.



4. Find the area of the segment of a cycloid included between two chords parallel to the base; and thence find the area of the cycloid. (N. B.  $x = a\theta - a \sin \theta$ ,  $y = a - \cos \theta$ .)

5. A horse runs at the uniform speed of 30 feet a second on an elliptical course of which the semiaxes are 1600 feet and 900 feet. Compute the rate at which he is approaching the centre of the course or receding from it, at the moment at which his distance from the centre is 1200 feet. Compute also his angular velocity (in degrees per second of time) about the centre, at the same moment. (N. B.  $57.3^\circ =$  the angle at which the arc equals the radius.)

6. A certain singly periodic function of the second order has  $\frac{1}{2}\pi$  for its period, 0 and  $\frac{1}{2}\pi$  for zeros, and  $\frac{1}{2}\pi$  for a double infinite, and equals 1 when  $z = \frac{1}{2}\pi$ . Express the function by means of exponential forms and reduce it to a simple trigonometric form free from the imaginary symbol.

7. Integrate  $\frac{1}{x^2 \sqrt{z^2 - 1}}$ .

## Course II. (see page 59).

### MECHANICS, I.

(Special Examination, December, 1871.)

[The first eight questions constitute the paper; but Nos. 9 and 10 may be added in partial compensation for deficiencies.]

1. Prove that if any number of forces act on a point and in one plane, the algebraic sum of their moments about any point in that plane is equal to the moment of their resultant about the same point.

About what points does the sum of the moments vanish?

2. What consideration shows that every body has a *centre of gravity*? What are the general formulas in terms of rectangular coördinates for a centre of gravity?

3. Prove that the volume of a solid of revolution is measured by the product of the generating area and the circumference described by its centre of gravity.

Find, by this theorem, the c. g. of a *semicircular plate*.

4. Prove that two contrary couples are in equilibrium, if their moments are equal, their planes parallel, and their arms parallel.

Of what general proposition is this a part?

When all the forces that act on a free, rigid body are reduced to a *resultant force* and a *resultant couple*, in what respects is this system invariable, and in what respects variable, the forces being given? What is the *central axis* of the system?

5. How many and what are the *conditions of equilibrium* of a set of forces which act on a free, rigid body in any directions?

6. From a homogeneous circular plate (radius  $\lambda r$ ) a circular piece (radius  $r$ ) is taken, the distance between the centres of the circles being  $a$ . Find the c. g. of the remainder.

7. Three equal hemispheres rest with their flat surfaces on a rough horizontal plane ( $\mu = \frac{1}{3}$ ) so that their centres form an equilateral triangle, and a sphere of equal radius and density rests on them without friction. Find the position of the system when it is just on the point of slipping.

8. A straight, uniform beam rests with its ends on two smooth inclined planes, which are placed on a smooth horizontal plane and prevented from separating by a string which connects them at their lowest points. Find the position of equilibrium of the beam, and the tension of the string.

9. A sphere (weight  $W$ , radius  $r$ ) is suspended by a cord from a point vertically over a fixed sphere (radius  $R$ ). The length of the cord and the height of the point above the fixed sphere being equal to  $R$ , find the tension of the cord and the mutual pressure of the spheres.

10. A weight hangs from the edge of a homogeneous hemisphere, which rests by its convex surface on a horizontal plane. To find the inclination of the axis of the hemisphere to the vertical. (Dist. of c. g. from centre =  $\frac{3}{8}r$ .)

## MECHANICS, II.

(Special Examination, March, 1872.)

1. Find the formulas for  $v$  and  $s$  in the case of uniformly varied rectilinear motion.

2. Prove that the normal acceleration of a point which moves on any curve is  $\frac{v^2}{r}$ .

3. An imperfectly elastic ball falls from a given height  $h$ , upon an inclined plane ( $\alpha = 30^\circ$ ); determine the range and the time of flight between the first and second rebounds.

4. Two equal weights are connected by a cord; one of them hangs freely, and the other is projected along a smooth horizontal table with a velocity of eight feet per second. How long and how far will the former weight rise?

5. Prove that the increment or vis viva of a moving particle during any interval is equal to the work expended on the particle in that interval.

6. State the Principle of Virtual Velocities; and deduce from it the condition of equilibrium of the Lever.

7. A right pyramid, on a square base of 16 feet side, has an altitude of 24 feet, and stands on a horizontal plane. Find the work necessary to turn it round one of its edges, a cubic foot of its material weighing 100 pounds.

8. A particle moves in an ellipse under a force directed towards the centre of the ellipse; to find the force and the velocity.

## MECHANICS, III.

(Final Examination, June, 1872.)

1. What is the simplest equivalent of any system of forces acting on one particle? of any system of forces acting on a rigid body?

Give the general formulas for the rectangular coördinates of the centre of gravity of a system of particles.

2. A uniform rod (length  $2a$ ) rests on a fixed peg with its end against a smooth vertical wall (from which the distance of the peg is  $b$ ). Required the position of equilibrium.

3. What is the measure of *tangential acceleration*? of *normal acceleration*?

What is the distinction between *applied* and *effective forces*? What is *force of inertia*? What is D'Alembert's Principle?

What is the relation between *work* and *force*? between *work* and *vis viva*? What is the measure of the *vis viva* of a body which rotates about a fixed axis?

4. A ball of elasticity  $e$  is thrown at an angle of elevation  $\alpha$  towards a vertical wall from a point distant  $a$  from the wall, and returns after its rebound to the point of projection. Find the velocity of projection.

5. A train weighing 75 tons ascends an incline of 1 in 800, with a uniform speed of 40 miles an hour. Assuming the friction to be 6 pounds per ton, find the horse-powers. N. B. 1 mile = 5280 feet; 1 ton = 2240 pounds; 1 horse-power = 33,000 ftlbs. per min.

6. Prove that when the force which acts on a particle is directed constantly towards a fixed centre, the areas described by the radius-vector are always in one plane and proportional to the times.

What is the path of the particle, if the central force is directly proportional to the distance from the centre? If it is inversely proportional to the square of the distance?

7. Find the moment of inertia of a cone about a diameter of the base.

8. A uniform cylinder weighing 100 pounds turns without friction on its axis, which is horizontal. Motion is communicated by a weight of 10 pounds attached to a flexible string, without weight, which is coiled round the surface of the cylinder. Find the space through which the weight will descend in 10 seconds. N. B. Moment of inertia of cylinder about axis =  $\frac{1}{2} m r^2$ .

## MATHEMATICAL EXAMINATIONS FOR SECOND-YEAR HONORS.

(September, 1872.)

## I. ALGEBRA AND TRIGONOMETRY.

1. Explain the trigonometric reductions of Peirce's Analytic Mechanics 857-15.

2. Find all the solutions of the two equations,

$$\begin{aligned} x^3 - y^3 &= 215, \\ x^2 + xy + y^2 &= 43. \end{aligned}$$

3. Find the greatest common divisor of  
 $81 a^4 x^4 - 24 a^7 x$  and  $3 a x^7 - 2 a^2 x^6 + 3 a^3 x^5 - 2 a^4 x^4$ .
4. Solve the equation  $\sqrt{5 + (3 + x)^3} = 1 + \sqrt[3]{3 + x}$ .
5. Find the angle between any two adjacent faces of the regular dodecahedron, which is formed of regular pentagons, three meeting at each solid angle.

## II. SOLID GEOMETRY.

1. What is the measure of the angle formed by two planes? By what arc is the angle made by two arcs of great circles measured? What is the measure of the solidity of a pyramid? What is the ratio of two similar solids? Find the expression for the area of the convex surface of a sphere, and its solidity, in terms of  $\pi$ .
2. Prove that the intersections of two parallel planes by a third plane are parallel lines.
3. Prove that a truncated triangular prism is the sum of three pyramids having a common base equal to that of the prism and their vertices at the three vertices of the inclined section.
4. Prove that the sum of the angles of a spherical triangle is greater than  $180^\circ$ , and that its spherical surface is measured by the excess above  $180^\circ$ .
5. Prove that if two points of the circumference of a great circle (not extremities of the same diameter) are distant by a quadrant from one and the same point of the surface of the sphere, the last point is a pole of the circle.
6. How many lines can be drawn through a given point parallel to a given plane? parallel to a given line?

## III. ANALYTIC GEOMETRY.

1. Determine the locus of a point which moves so that the sum of the squares of its distances from two fixed points is constant.  
 Also determine the locus, changing *sum* into *difference*.  
 Which of these loci is sometimes *imaginary*? and under what *condition* is it *imaginary*?
2. Describe the process by which the general equation of the second degree is reduced to the form

$$A'x^2 + B'y^2 + C = 0;$$

and state what simplification is accomplished by means of each transformation of coördinates employed. In what case is this reduction impossible?

What is the form of the equation of the second degree, when the origin is at the centre of the curve, and the axes not conjugate diameters? What

is the form, when the axes are parallel to a pair of conjugate diameters, and the origin is at one of the points where the axis of  $x$  meets the curve?

To which of the three classes does the curve belong, when either  $A = 0$  or  $B = 0$ , while, at the same time, (1st)  $H$  is not 0; (2d)  $H = 0$ ?

Sketch the loci of the following equations (in rectangular coördinates), and determine the position of the foci:—

$$9x^2 - 16y^2 + 576 = 0; \quad 4x^2 - 4xy - 3y^2 = 0; \quad 3x^2 + 10y = 0.$$

3. To find the expression for the perpendicular  $p'$  from the left-hand focus of an hyperbola upon a tangent; and to prove the proportion

$$b': b = \rho': \rho',$$

being given  $\rho = ex' - a$ ,  $\rho' = ex' + a$ ,  $b' = \sqrt{\rho\rho'}$ .

4. By the principle  $S + kS' = 0$ , find the equation of a line which passes through the intersection of

$$3x - 5y + 2 = 0 \text{ and } 2x + y - 3 = 0,$$

and is perpendicular to  $6x - 2y + 9 = 0$ .

#### IV. ANALYTIC GEOMETRY OF SPACE.

(Equation of First Degree.)

1. Prove that if  $\phi$ ,  $\beta$ ,  $\gamma$  are the angles which any line in space makes with three rectangular axes,

$$\cos^2\phi + \cos^2\beta + \cos^2\gamma = 1.$$

2. What is the general form of the equation of a plane?

Find the equation in terms of the *intercepts*.

Find the expression for the *angle* between two planes, in terms of the coefficients in their general equations; and find the conditions of the planes being parallel to each other, and of their being perpendicular.

3. To find the direction-cosines of a right line given by its projections.

#### V. DIFFERENTIAL CALCULUS.

1. Develop  $\log(1+x)$  and  $\log(1-x)$  in series arranged according to powers of  $x$ .

2. Find the value of  $\cotn(1-x^2)\log x^3$ , when  $x = 1$ .

3. Define the *evolute* of a curve; and prove that the *normals* to any curve are *tangents* to its *evolute*.

4. A point moves in an ellipse of which the polar equation is

$$r = \frac{a - c \cos \phi}{a^2 - c^2},$$

with a *uniform angular velocity* about the origin of polar coördinates. Find the formula for the rate at which the point approaches or recedes

from the origin; and determine the values of  $\phi$  and  $r$  for which that rate = 0.

Find the *maximum* and *minimum* values of the rate in question, and the points of the ellipse at which they occur.

5. Let  $a = 5$  miles,  $c = 3$  miles, and let the uniform angular velocity be such that the complete circuit of the ellipse is traversed in 15 minutes. Find, in feet per second, the rate at which the point is approaching the origin, and also its actual velocity in its path, when  $\phi = 90^\circ$ .

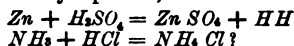
## VI. — PHYSICS (INCLUDING CHEMISTRY).

### FRESHMEN.

**Chemistry** (see page 55).

(*Final Examination, June, 1872.*)

1. The following chemical reactions give what information in regard to the processes which they represent, —



2. How is carbonic dioxide prepared? Write and explain the reaction. What are its most important properties?

3. Give the symbols of the following substances: Carbon monoxide, marsh gas, olefiant gas. How can they be distinguished?

4. Chlorine and hydrochloric acid, — how can they each be prepared? Write and explain the reactions. Give their most important properties.

5. Why must potassium (not sodium) nitrate be used in making gunpowder? What is the cause of the explosive nature of gunpowder?

6. Describe fully Leblanc's process for converting common salt into sodium carbonate. Write and explain the reactions.

7. What is hard water? How are stalactites formed?

8. Under what conditions does an elementary substance exhibit a characteristic spectrum?

9. Name the substances represented by the following symbols: —

$\text{HH}$ , —  $\text{OO}$ , —  $\text{HCl}$ , —  $\text{H}_2\text{O}$ , —  $\text{H}_3\text{N}$ , —  $\text{H}_4\text{C}$ , —  $\text{NO}$ , —  $\text{CO}_2$ , —  $\text{SO}_2$ , —  $\text{HNO}_2$ , —  $\text{H}_2\text{SO}_4$ , —  $\text{KOH}$ , —  $\text{CaO}_2\text{H}_2$ , —  $\text{NaCl}$ , —  $\text{CaCl}_2$ , —  $\text{MgSO}_4$ ,  $\text{KNO}_3$ .

10. Show that  $\text{H}_2\text{O}$  is the correct symbol of water, knowing that the specific gravity of vapor of water is 9, and that the percentage composition of water is —

Hydrogen . . . . .	11.11
Oxygen . . . . .	88.89
	<hr/> 100.00

11. How many litres of ammonia, measured at  $10^{\circ}$  and 755 mm. pressure can be obtained from 100 grms. of sal ammoniac?

12. How many kilos. of salt must be used to make 100 kilos. of aqueous hydrochloric acid containing 20 per cent of the pure gas?

13. Calculate the percentage composition of common alum ( $Al_2K_2SO_4 + 24 H_2O$ ).

## DATA.

	Combining weight.
Aluminium . . . . .	27.4
Chlorine . . . . .	35.5
Hydrogen . . . . .	1
Nitrogen . . . . .	14
Oxygen . . . . .	16
Potassium . . . . .	39.1
Sodium . . . . .	23
Sulphur . . . . .	32

One litre of ammonia gas at  $0^{\circ}$  C. and 760 m. m. weighs 0.761 grammes.

## SOPHOMORES.

**Required Physics** (see page 56).

## MECHANICS AND HYDROSTATICS.

(Final Examination, February, 1872.)

1. What relation exists between mass, volume, and density? Derive from this relation the simplest unit of mass.

2. In what three senses is the term kilogramme (or pound) employed?

3. How is variable velocity measured?

4. A falling stone, a sling whirled round at a uniform rate in the hand, — both are instances of acceleration: explain the difference between the two cases.

5. Give an example of *mechanical advantage*, showing also that what is gained in power is lost in velocity.

6. Explain the distinction between kinetic energy (energy of motion) and potential energy (energy of position) with an example of each kind.

7. A stone is projected vertically with a velocity of 80 m. per second; find the time of ascent and the height ascended. (Take  $g = 10$  m.)

8. A stone (mass = 4 kilogrammes) is whirled round horizontally by a string 3 m. long having one end fixed; find the time of revolution when the tension of the string is 12 kilogrammes.

9. Describe one method of finding the specific gravity of a body.

10. For brevity it is sometimes said, "The pressure of the atmosphere is 30 inches." Give the complete statement.

11. State the reasons, practical and theoretical, which prevent us from obtaining a perfect vacuum with an air-pump.

12. What causes the flow of water in a siphon?

13. Show that Mariotte's bottle enables us to obtain a constant flow of water.

14. Describe Hero's fountain and its action.

15. In a suction pump, the area of the piston is 80 square centimetres, and the distance from the spout to the reservoir is 8 metres. Find in kilogrammes the force necessary to raise the piston, friction being neglected.

### Elective Chemistry (see page 58).

(Final Examination, June, 1872.)

I. 1. What is the weight, in criths and in grammes, of two litres of the vapor of a compound of titanium (Ti) whose specific gravity referred to air = 6.65? It is assumed that the vapor exists at standard temperature and pressure.

2. Calculate the symbol and give the name of the substance.

Percentage composition

Ti	26
Cl	74
	<hr/>
	100

Atomic weight of Ti = 50.

3. This substance can be made by passing chlorine over an intimate mixture of  $\text{TiO}_2$  and carbon intensely heated. This substance and CO are the only products.

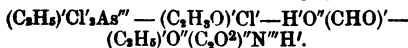
Write and analyze the reaction. To what class of reactions does it belong?

4. How many litres of CO at  $80^\circ$ , and 70 cm pressure, will be given off in this reaction, if 5 grs. of  $\text{TiO}_2$  are used?

5. What is the quantivalence and equivalent of Ti?

II. Give the meaning and example to illustrate the use of each of the following terms: Acid, base, simple ether, salt, basic salt, the two sorts of acid salts, alcohol.

III. To what type does each of the following symbols belong?



Write their graphic symbols by the second method. What compound radicals occur in them? Define a compound radical, and give the law for determining its atomicity.

IV. The vapor density referred to hydrogen of  $[\text{NH}_4]\text{Cl}$  is 13.4; does this correspond to the true molecular weight of this compound? Explain the apparent exception to Avogadro's Law.

V. Develop the formula for finding the rate of diffusion of a gas. Give the grounds for each step of the reasoning. Apply the formula to H-H diffused into O-O.

VI. Find the calorific intensity of marsh gas ( $\text{CH}_4$ ) burnt in oxygen.

Calorific power of  $\text{CH}_4$  = 13063.

Specific heat of steam = 0.4805.

Specific heat of  $\text{CO}_2$  = 0.2164.



## JUNIORS.

## Required Physics (see page 58.)

## OPTICS.

(Final Examination, February, 1872).

1. Describe the shadow of the moon thrown upon the earth during an eclipse. Would the image of a star received upon a screen through a minute aperture be inverted? Give reasons.
2. Describe Fizeau's method of measuring the velocity of light.
3. Why are reflections of objects on the shore seen in still water? and what influence does the height of the sun above the horizon have upon these reflections?
4. Define the term "Index of Refraction." Why is a glass prism with a refracting angle of  $90^\circ$  and an index of refraction of  $41^\circ 48'$  inadmissible in the spectroscope?
5. When are biconcave spherical lenses used?
6. How do the positions of the virtual foci differ from those of the conjugate foci in the case of concave spherical mirrors?
7. Explain the terms *dispersion*; *achromatism*; *homogeneous light*.
8. How does the terrestrial telescope differ from the astronomical?
9. Give the theory of binocular vision.
10. Discuss the power of accommodation of the eye.

## Physics (see page 59).

(Final Examinations, June, 1872.)

## I. ASTRONOMY.

1. Define vertical circles. What is the *prime* vertical?
2. Define the Altitude and Azimuth, Declination and Right Ascension, Latitude and Longitude of a star.
3. When the Right Ascension and Polar Distance of a star are known, how is the time of its rising and setting found?
4. How is the latitude of a place, as well as its local time, found by observing a star at equal altitudes east and west of the meridian?
5. In what three ways may the geographical latitude be found?
6. How is the geographical longitude found?
7. How is the Right Ascension of a star found?
8. How is the Declination of a star found?
9. How are the Latitude and Longitude of a star found?
10. What is the cause of the *aberration* of light? What is the equation of light?
11. What are the two kinds of parallax? what is the formula for the geocentric parallax? how is the formula demonstrated?
12. What is the equation of the centre?
13. How is the distance of the sun found?

14. Why do the lengths of the solar and sidereal *days* differ?
  15. Explain mean and apparent noon, and the equation of time.
  16. What is the difference between the *sidereal*, the *tropical*, and the *anomalistic* years?
  17. What are the nodes, and the line of apsides, of the moon's orbit, and how do they move?
  18. Explain the difference between the *sidereal* and *synodical* revolutions of the moon.
  19. Why does the moon always turn the same side to the earth?
  20. What orbits are possible under Newton's law of universal gravitation? What determines the orbit in any case?
- 

## II. ASTRONOMY AND ACOUSTICS.

1. How is the distance of a fixed star determined?
  2. What are the advantages of selecting an *optically* double star for this purpose?
  3. What are *periodical* stars?
  4. What is the difference between optically double stars and binary systems?
  5. How is it known that the fixed stars, so called, have a *proper motion*?
  6. What are the various classes of nebulae?
  7. What is the zodiacal light?
  8. Give some account of shooting stars.
  9. What is the difference between the Julian and Gregorian Calendars?
  10. How is the velocity of sound in the atmosphere found?
  11. Why did the theoretical velocity, originally, differ greatly from the observed velocity?
  12. How are the laws of reflection illustrated in Acoustics?
  13. Upon what do the pitch, intensity, and quality of musical sounds depend?
  14. What is the rule for finding the number of vibrations of a stretched chord?
  15. What is the difference between transverse and longitudinal vibrations?
  16. What is the difference in the sounds of open and closed organ-pipes?
  17. What is meant by the harmonics of a chord or organ-pipe?
  18. What are the optical methods of studying the vibrations of plates, cords, and organ-pipes?
  19. What are sympathetic vibrations?
- 

### Experimental Physics (see page 60).

The examinations in the course entitled Experimental Physics were conducted in the Laboratory. Pieces of apparatus with directions for

working were placed before the student; and his manner of working, together with his results, formed the basis upon which the marks were given.

The following is the paper that was given at the Final Examination. Similar papers were given at regular intervals through the year.

(*Final Examination, June, 1872.*)

1. In this series of six observations what is the probable error?

1.088, — 1.087, — 1.086, — 1.085, — 1.084, — 1.083.

2. If  $F^{(n)} = F + na + \frac{n(n-1)}{1.2}b + \frac{n(n-1)(n-2)}{1.2.3}c$ , &c., is the

formula for interpolation: how do you use it? Give also the graphical method of interpolation.

3. What classes of errors must you expect in physical investigations?

4. Obtain the specific gravity of a given substance, by Nicholson's hydrometer. (Laboratory Table.)

5. Explain the principle of the Wheatstone Bridge.

7. Measure the resistance of the two conductors before you. (Laboratory Table.)

7. Measure the resistance of a Daniell's Cell. (Laboratory Table.)

8. Compare the Electromotive force of a Daniell's and a Grove's element by means of the Galvanometer. (Laboratory Table.)

9. Find a point where the line makes "earth" by both the Thomson's Galvanometer and the Electrometer. (Laboratory Table.)

10. In a series of derived circuits of resistances,  $a$   $b$   $c$ , regulating the resistance of the battery, determine the strength of the current in  $c$ .

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### Chemistry (see page 60).

(*Final Examination, June, 1872.*)

1. Upon what facts is the separation of the elements into six basic groups based?

2. Describe the most important compounds of lead. What are the resemblances and what are the differences between lead and barium?

3. What two classes of salts does mercury form? How distinguish between them?

4. Compare aluminum, chromium, and iron. Upon what differences is the method of separation founded?

5. How many distinct radicals does manganese form? Give the valence of Mn in each.

6. What is the chief source of zinc? How is the metal purified? What have zinc and magnesium in common, and how do they differ?

7. What are "sulphur" acids and salts? What elements form sulphur salts most readily, and how are they used in analysis?

8. Given a solution of potassic chromate, — in the ordinary course of analysis what changes take place ?

9. A solution contains cupric nitrate, potassic arsenite, zincic sulphate, manganous chloride. Write brief notes of the analysis.

10. A solution contains sodic phosphate and potassic oxalate. Prove these acids present, and other acids absent.

## SENIORS.

(Final Examinations, June, 1872.)

Physics (see page 62).

### I. SOUND, MAGNETISM, AND ELECTRICITY.

1. How is the velocity of light determined ?
2. Why did the theoretical velocity, originally, differ greatly from the observed velocity ?
3. Upon what do the pitch, intensity, and quality of musical sounds depend ?
4. What is the rule for finding the number of vibrations of a stretched cord ?
5. What is the difference in the sounds of open and closed organ-pipes ?
6. What is meant by the harmonics of a cord or organ-pipe ?
7. What is the definition of the Declination of the magnetic needle ?
8. What is the definition of the Inclination or Dip ?
9. How is the intensity of Terrestrial Magnetism found ?
10. What are the Magnetic Poles of the earth ?
11. What is the theory of magnetism ?
12. Explain the process of electrical induction ?
13. What does Ohm's formula for the intensity of a voltaic element become, when the whole resistance is divided into the *internal* and *external* resistance ?
14. What does the last formula become when a series of ( $n$ ) elements are coupled together ?
15. What does it become when the size of a single element is made ( $n$ ) times larger ?
16. When do currents of electricity, *not* parallel, attract, and when do they repel ?
17. What is a solenoid ?
18. What is electrodynamic or current induction ?
19. What is the difference between magnetism and dia-magnetism ?
20. How is thermo-electricity produced ?

### II. LIGHT.

1. Explain the two theories of light ?
2. In the undulatory theory, upon what do the color and intensity of light depend ?

3. What is the wave length? Why is  $\lambda = vt$ ?
4. How is the principle of interference illustrated by means of two mirrors?
5. How is the wave length found for the different colors?
6. How are the numbers of vibrations per second found for the different colors?
7. How is the law of reflection deduced from the undulatory theory?
8. How is the law of refraction deduced from the undulatory theory?
9. What is the arrangement for seeing Newton's rings?
10. What is the way of proving that the transmitted rings are complementary to the reflected rings?
11. How are these rings explained by the undulatory theory of light?
12. Explain why the rings are larger when the light falls obliquely?
13. Explain the diffraction of light.
14. What is the distinction between the *internal* and the *external* fringes?
15. What is double refraction?
16. What are the axes of a crystal?
17. How does the *extraordinary* ray differ from the *ordinary* ray?
18. What are *positive* and *negative* crystals?
19. What are the laws of the polarization of light by reflection?
20. How is light polarized by refraction?

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### Heat (see page 62).

(Final Examination, June, 1872.)

1. Explain the construction and use of Regnault's apparatus for determining the tension of the vapor of water at temperatures above  $45^{\circ}\text{C}$ .
2. When heat is applied to a body, in how many different ways is that heat expended?
3. Give the principal practical rules for the economical use of fuel.
4. Give an account of the construction, operation, and advantages of Siemens' Regenerative Gas furnace.
5. Define mass, density, and *work*. What is the unit of work now adopted precisely stated?
6. Give in detail Mayer's method of determining the mechanical equivalent of heat, with the principal theoretical objection to the method.
7. State and illustrate the principle of equivalent transformations.
8. Give a sketch of Joule's methods of determining the mechanical equivalent of heat.
9. Give the two processes employed by Hirn for the same purpose.
10. Compute the ratio between the external and internal work done when one gramme of water at  $100^{\circ}\text{C}$  becomes steam at the same temperature.
11. Prove Clapeyron's theorem, and show how the moduli of different perfect gases are related.
12. What are isothermal and adiabatic lines, and how are they related to each other?

13. Illustrate by means of a curve the work done by the successive expansion and contraction of a given weight of a perfect gas which finally returns to the initial conditions of temperature and pressure.

14. Give the law of cooling by radiation as determined by Dulong and Petit.

### Mineralogy (see page 62).

(Final Examination, June, 1872.)

The examination of each student consisted in the identification and description of 8 crystal models, and 12 mineral specimens selected from over 200 mineral species which the class had studied.

### Organic Chemistry (see page 62).

(Final Examination, June, 1872.)

1. How many essentially different modes of grouping are possible with  $C_6H_{12}$ ?

2. Describe the methods of preparing aniline from benzole.

3. Write a series of reactions for the synthesis of  $C_6H_5-O-H$ , starting with mineral substances.

4.  $C_6H_5-CN + K-O-H + H-O-H = C_6H_5-CO-O-K + H_2N$ . Analyze this reaction and show the important effect produced by the action of  $K-O-H$  on the cyanide of a hydrocarbon radical.

5.  $2CH_3-O-H + Na-Na = 2CH_3-O-Na + H-H$ .

$CH_3-O-Na + C_6H_5-I = NaI + CH_3-O-C_6H_5$ .

Examine these reactions as illustrating the use of  $Na-Na$  as a reagent in Organic Chemistry.

6.  $H-O-C_6H_5 + PCl_5 = PCl_5O + HCl + C_6H_5Cl$ .

$3C_6H_{11}-O-H + PCl_5 = H_3O_2POH + 3C_6H_{11}Cl$ .

Compare the effects of  $PCl_5$  and  $PCl_3$  as reagents as thus illustrated.

7.  $C_6H_5-O-H + O = (C_6H_5O)-H + H_2O$ .

$K-O-(CO-H) + K-O-(CO-CH_3) = K_2O_2=CO + H-(CO-CH_3)$ .

$H-(CO-CH_3) + K-O-H = K-O-(CO-CH_3) + H-H$ .

$2(C_6H_5-O)-H + O-O = 2(C_6H_5O)-O-H$ .

Analyze the above reactions and show how far the constitution of aldehyde is indicated by them.

8. Represent by graphic symbols the constitution of an aldehyde and acetone, and show that the chemical relations of these isomeric compounds are the result of a difference of atomic grouping.

9. Represent the constitution of benzoic alcohol by a graphic symbol, and show how it resembles that compound of the methylic series which has the same number of carbon atoms. Compare the carbon skeletons of the two compounds.

10. Why does carboic acid differ so greatly in its relations from benzoic alcohol although homologous with it?

11. Give the graphic symbols of ethylene and ethylidene and the reasons for the forms adopted.

12. What must be the constitution of the two isomeric forms of lactic acid derived from the cyanhydrines of ethylene and ethylidene?

13. Write the reactions,

1st. of lactic acid on sodic carbonate,

2d. of sodium on sodic lactate,

3d. of ethylic iodide on disodic lactate.



14.  $\text{H-O-Co-}\overset{\text{CH}_3}{\underset{|}{\text{CH}}}\text{-O-H} + 2\text{HI} = \text{H-O-Co-}\overset{\text{CH}_3}{\underset{|}{\text{CH}}} + \text{H}_2\text{O} + \text{I-I}.$

What is the general action of HI as a reagent in Organic Chemistry?

## VII.—NATURAL HISTORY.

### SOPHOMORES.

#### PHYSICAL GEOGRAPHY, METEOROLOGY, AND STRUCTURAL GEOLOGY (see page 58).

(Final Examination, June, 1872.)

1. State what you know as to the form and dimensions of the earth, and the means by which they have been determined. What is the specific gravity of the earth as a whole, and of the average material of its accessible crust?

2. Enumerate the mountain systems of Europe, and describe in detail one of them.

3. Explain the distinction between *spring-tides* and *neap-tides*. Describe the path of the tide-wave in the Atlantic Ocean.

4. Explain why the barometer shows daily two *maxima* and two *minima*. In what regions is this daily variation most evident?

5. Define the *dew point*. Calculate the dew point from the following data: Observed temperature of the dry-bulb thermometer,  $72^\circ$ ; of the wet-bulb thermometer,  $60^\circ$ ; factor to be used in the calculation (taken from the table) 1.75.

6. Account for *fogs*; and state the differences in the conditions attending the formation of fogs in spring and in summer.

7. Explain the terms, — *rock, formation, oolite*. Illustrate *dip* and *strike* by means of a diagram. What is an *escarpment*? For what is it liable to be mistaken? and why?

8. Give the arguments in favor of and against the hypothesis of "elevation craters."

9. Define the terms *anticlinal* and *synclinal*. Show how synclinal ridges may have been formed. Illustrate by diagrams.

10. What are *faults* in strata? (Diagram.) When are strata said to be

*non-conformable* ? (Diagram.) Give an example to show how the rate of deposition of sedimentary rocks may be indicated by single fossils.

11. Explain the original and present use of the terms, *primary*, *secondary*, *tertiary*.

12. What kinds of fossils are the most useful in determining the age of stratified rocks ? and why ?

13. Into what groups are the *tertiary* strata divided ? What is the exact significance of the terms used in designating the groups ? On what grounds and into what groups are the *post-tertiary* strata divided ?

14. To what geological period is the *glacial epoch* to be referred ; and on what grounds ?

15. In what different ways, and with precautions, is the test of relative positions to be applied in determining the age of *aqueous*, *volcanic*, and *plutonic* rocks ?

16. What are the principal causes of metamorphism ? State and answer the objections to the metamorphic theory.

## JUNIORS.

**Botany** (see page 60).

(*Final Examination, June, 1872.*)

1. Of what chemical elements are plants made ?
2. What is the food from which these are derived ?
3. What are the principal products of assimilation, and how produced ?

4. Explain the difference between an exogenous and endogenous stem.
5. Describe the principal kinds of venation in leaves.
6. Also the principal modes of phyllotaxy.

7. State the difference between a cyme and a corymb.
8. Between an irregular and an unsymmetrical flower.
9. Why do the plants of a flower normally alternate ?

10. State the differences between a peach and an apple.
11. Between a raspberry, strawberry, and mulberry.
12. Between loculicidal and septicidal dehiscence.

13. Explain the difference between angiospermous and gymnospermous plants in structure and in their mode of fertilization.

14. What is the advantage in flowers being visited by insects ?

15. What are some of the principal ways or arrangements in flowers by which this advantage is secured ?

16. What answers to stamens and pistils in Ferns and Mosses ?



17. Explain the fertilization in Mosses.

18. Also in Ferns.

19. What advantage has a climbing plant ; and in what way do plants climb ?

20. Briefly define the following terms : —

Carpel,  
Placenta,  
Phyllodia,  
Adnation,

Coalescence,  
Æstivation,  
Cotyledon,  
Hypogynous,

Pericarp,  
Internode,  
Scape,  
Stomata,

## VIII.—MUSIC.

(*Final Examination, June, 1872.*)

1. Write out an example of every kind of chord of the seventh and altered chord.

2. State the means and object of the preparation of the seventh. What seventh of a chord may be used without preparation ? On what does its free entrance depend ?

3. Write out the complete harmony to the figured bass, Exercise No. 1. Name the chords of the seventh (including inversions) employed in this exercise, and give the rule of resolution peculiar to each discord.

4. State the several conditions of the good harmonic treatment of a given melody. Under what restrictions may the chord of the sixth and fourth be used ? When must covered fifths and octaves be rejected ? and when are they permitted ?

5. Write the harmony to Exercise No. 2.

6. What are the rules of two part counterpoint, note against note ? How are the rules modified in the two succeeding orders, two notes against one and four notes against one ?

7. Write a counterpoint to Exercise No. 3.

8. In florid counterpoint what must be observed in order to give elegance to the melody ? How should eighth notes be used ? How may discords be employed in syncopated counterpoint ?

9. How does three part counterpoint differ from two part ? Write the tenor and alto, note against note, to the subject, Exercise No. 4. Write the tenor and bass to the subject, Exercise No. 5, with half notes in the tenor and quarter notes in the bass.

10. How is a melody constructed ? Name its subdivisions. What is thematic treatment ? In accompanying a melody what points are to be regarded ? Analyze the melody, Exercise No. 6, and write an accompaniment to it.

# EXAMINATIONS IN THE DIVINITY SCHOOL

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## SELECTED PAPERS

FROM THOSE SET DURING THE LAST TWO YEARS.

### TEXTUAL CRITICISM. — PROF. YOUNG.

#### *Juniors.*

1. By what means do we ascertain the genuine text, and how is the age of a manuscript determined?
2. State the causes of the various readings, and the principles by which we decide among them.
3. What are the earliest books of the New Testament, and how were they originally written?
4. When was the first Greek Testament printed, and how was the "Received Text" formed?
5. Mention the characteristics of the editions of Wetstein, Griesbach, Lachmann, Tischendorf, and Tregelles.
6. What are the Ammonian sections, the Eusebian canons, the Euthalian stichometry?
7. Give an account of the Sinaitic manuscript.
8. Describe the MS. A.
9. " " B.
10. " " C.
11. " " D.
12. " " E.
13. What are the Cursive Manuscripts and Lectionaries?
14. Describe the principal ancient versions of the New Testament.
15. What is to be said in regard to the genuineness of Matt i., ii.?
16. The Doxology of the Lord's Prayer, Matt. vi. 13?
17. The close of Mark's Gospel, xvi. 9-20?
18. Explain John v. 4.
19. The account of the woman taken in adultery, John vii. 53-viii. 11.
20. Give the true reading of Acts xx. 28.
21. Give the true reading of 1 Timothy iii. 16, and state also the other readings.
22. The text of the three heavenly witnesses, 1 John v. 7.

### GOSPEL OF MATTHEW. — PROF. YOUNG.

#### *Juniors.*

1. State the general principles of interpretation.
2. The origin of the first three Gospels.

3. The original language of Matthew's Gospel, and the evidence of its genuineness.
4. The purpose and characteristics of this Gospel.
5. Explain Matt. i. 22, 23.
6. Give the Baptist's meaning in iii. 11.
7. What was the temptation of Jesus?
8. Was the Sermon on the Mount the first sermon of Jesus? State the object of the discourse?
9. Explain Matt. v. 5.
10. What did Jesus teach in regard to oaths?
11. How are his words respecting non-resistance to be interpreted, v. 39, 40?
12. The meaning of the terms, "Son of Man," "Christ," "Messiah," "Jesus."
13. How are parables to be interpreted?
14. Give the exact meaning of βαπτίζω, μετανοέω, διάβολος, δαιμόνιον, προφητεύω, αἶψα, σκανδαλίζω, γέννηα.
15. What is the sin against the Holy Spirit, and why is it declared unpardonable, xii. 31, 32?
16. What is meant in xvi. 19?
17. What is to be understood by the word translated "regeneration," and by the "twelve thrones," xix. 28?
18. What did Jesus mean by his "coming," and when was it to take place?
19. Explain Matt. xxiv. 29, 30.
20. What is indicated in xxv. 31, 32?
21. Why did Judas betray Jesus?
22. How is the agony of Jesus to be accounted for, and what views have been taken of it?
23. How are the words of Jesus to the high priest to be interpreted, xxvi. 64?
24. State the evidence for the resurrection of Jesus. What theories have been given to account for the belief of the apostles, and what estimate is to be made of them?
25. Explain Matt. xxviii. 18, 19, 20.

### GOSPEL OF JOHN. — PROF. YOUNG.

#### *Middle Class.*

1. Give an outline of the evidence for the genuineness of John's Gospel.
2. The purpose of the Apostle, and the characteristics of his Gospel.
3. The origin of the doctrine of the Logos.
4. What is the meaning of the second θεός in John i. 1, and why?
5. Explain John i. 4, 5, 15.
6. Give the meaning of i. 29.
7. Explain Jesus's words, i. 52.
8. The meaning of ὁργή τοῦ θεοῦ in iii. 36.
9. The duration of Christ's ministry.
10. What is meant by "greater works" in v. 20, and xiv. 12?
11. Explain the reference to Moses, in v. 46, and to Isaiah, in xii. 41.

12. Give the meaning of *κρίσις* xii. 81, *ζωή* v. 24, *ἀληθινός* i. 9, xv. 1, *παροιμία* x. 6, *ὡσαννά* xii. 13, *προσεκύνησεν* ix. 38, *ὄνομα* i. 12, xiv. 13, *παράκλητος* xiv. 16, *ἀλήθεια* viii. 32, xiv. 17, and the distinction between *λόγος* and *φῶς* v. 35, viii. 12, *λούω* and *νίπτω* xiii. 10, *φιλέω* and *ἀγαπάω* xi. 3, 5.

13. The meaning of the first clause in vi. 44.

14. What do you understand by *ἐγώ εἰμι* in viii. 24, 28?

15. How could Jesus speak as in x. 8?

16. What is the exact meaning of x. 30?

17. Explain the words, xi. 25.

18. In what sense was the commandment "new," xiii. 34?

# HEBREW. — PROF. YOUNG.

## Juniors.

1. What is the title of the Hebrew Bible? Of the Pentateuch, and of the Psalter?

2. What signify the letters **ב** and **ד** and **בבב** in the divisions of the books of the Law?

3. What is meant by Qeri and Kethibh? Explain the Qeri in Gen. i. 1, and ii. 4.

4. Of what documents is Genesis composed? Which is the oldest, and what are the characteristics of each?

5. What are the origin and signification of the Hebrew names of the Deity?

6. Translate literally Gen. iv. 6-15, 23, 24.

7. Translate literally Gen. ix. 25-27, and explain verse 27.

8. What signifies the account of the Tower of Babel, Gen. xi. 1-9?

9. What is the etymology of the word "covenant," and how many covenants are mentioned in the Scriptures?

10. Give the derivation and meaning of the words, Adam, Eve, Abel, Japhet, Ham, Abram and Abraham, Israel, Hebrews, Canaanites, Aramæan, Sabbath, Dagon, Selah.

11. What are the words in Hebrew and Greek for "spirit," and "soul," and what is the difference between them?

12. What were "clean" and "unclean" beasts?

13. State the character of the first Psalm, and the reference made in v. 3, 4, 5.

14. Give the circumstances under which Psalm ii. was composed. Translate and explain v. 2, 7, 12.

15. When was Psalm iii. written, and to what do verses 6, 7, 8, 9, refer?

16. In Psalm viii. translate and explain v. 2, 3, 6 (1, 2, 5).

17. How is Psalm xxiii. 3 to be translated, and verse 4 to be explained?

18. Who are the speakers in Psalm xxiv. 7-10, and to what is the allusion in v. 7?

## Middle and Senior Classes.

1. Explain Numbers vi. 27, and state why this command was not obeyed.

2. What is the name of the Decalogue, and what are its divisions? What was probably the original form of it, and why? What did the Jews infer from the Second Commandment, and how does the Church of Rome interpret it? How was the Sabbath to be kept, how was its violation punished, and why? What follows from the words of the last Commandment in regard to the age of the whole?

3. How is the declaration, Deut. vi. 4, regarded by the Jews, and why?

4. What are the Phylacteries?

5. Give the meaning of Deut. xviii. 15.

6. What was the book of Jasher? How are the words of Joshua, x. 12, to be interpreted, and why?

7. What is the literal meaning of the Hebrew words for idols, Lebanon, Samuel, Job, Seraphim, Cherubim, Behemoth, Abaddon, Satan, Beelzebub?

8. State the characteristics of the Hebrew Threnody, 2 Sam. i. 17-27.

9. The age of the book of Job, and to what country belonged its author.

10. Give the argument of the book, — the position of Job's three friends, and his own.

11. Translate Job xix. 23-29.

12. " " xxix. 1-12.

13. " " xxxi. 35.

14. To what circumstances does Isaiah vi. refer?

15. Explain Isaiah vii. 14.

16. " " ix. 5 (6).

17. What view is to be taken of the second chapter of Jonah?

18. When did Habakkuk live? Give the occasion and the course of thought in chapter iii.

## THEOLOGY. — PROF. STEARNS.

### *Juniors.*

1. What is meant by Natural Theology? by Systematic Theology?

2. Give the two principal meanings of Philosophy, and the relation of Theology to it in each of those senses.

3. What is meant by the argument *a posteriori* for the being and attributes of God? The two forms of it? What is the real or supposed defect of the cosmological? On what metaphysical principle does it rest?

4. Why is an infinite series of finite beings incredible?

5. On what principle rests the physico-theological argument? What is its supposed or real deficiency? What its importance?

6. What are some of the forms of the *a priori* argument? the criticism and estimation of it?

7. State Kant's concession in regard to all these arguments; his criticism of them and what its worth.

8. Is the doctrine of development necessarily incompatible with the idea of an infinite intelligent Cause of all things?

9. State the evidence of the moral attributes of God.

10. What is meant by the personality of God? What the basis of it? What the crown? and what the evidence of it?
11. Give the course of thought to show that what we call evil does not prove duality.
12. On what must the conviction of the absolute, Divine, moral perfection finally rest?
13. Is the existence of God, with his absolute perfection, a doctrine which belongs solely to Natural Theology, or has Christianity added anything to the nature, amount, or force of the proof of it?

*Middle Class.*

1. What is meant by Providence, and what are the forms of conceiving and representing it in relation to the material world?
2. How may it be conceived in relation to the minds of free beings?
3. Illustrate what was taught you respecting Special Providence.
4. How meet the objection to Providence and prayer from the immutability of God?
5. What is the relation of Revelation to the Divine Providence, and what the distinction of common and special?
6. What is meant by calling the special revelation historical and redemptive?
7. What are the qualifications of the bearer of Divine revelation? and illustrate from the instance of Jesus Christ.
8. What was said respecting the charge in the Westminster Review, that the defenders of miracles make "*arbitrary will* the cause of all things, whereas the antithesis of law is not will, but chance, and personality is inconceivable without law"?
9. What are the sources of the external evidence of the genuineness of the Gospels?
10. What is Norton's argument, in both its forms, from the agreement of the copies?
11. Who were the Apostolic Fathers, and what the estimate of their evidence?
12. Give the points in dispute in regard to the evidence from the memoirs of Justin Martyr, and the result in relation to the Synoptics, and in relation to the fourth Gospel.
13. Give the views in which Nicholas has revived the hypothesis of Stroth, and the comments upon them.
14. State the relation of the "Acts of the Apostles" to the third Gospel, and the argument therefrom to the genuineness of the latter.
15. Give the original view of Baur in relation to the Gospel of Luke, and the modification of it by himself and his followers. What is meant by the internal evidence of the genuineness and authenticity of the Gospels? What were the principles of judgment in regard to them laid down, and how illustrated from Matthew and John?
16. State the objections to John's authorship of the fourth Gospel from the discourses and the reply.
17. What is the principal difficulty arising from the account therein of the Last Supper, and the solutions attempted?
18. What is the chief evidence now of the Divine origin of Christianity?

*Seniors.*

1. Is it in accordance with enlightened theism to suppose Divine interposition for the spiritual benefit of men?

2. What is the supposed occasion for such interposition according to the prevalent church doctrine? What are the principal items of this doctrine in relation to the fall of man, and what the truth, and what the error in it?

3. State the operation of the law of heredity.

4. Explain the "natural" or psychical man of St. Paul, 1 Cor. ii. 14. Why is its operation to produce sin universal? Is it by the will being wholly determined to evil from the commencement of individual moral life? If not, what is the explanation of the prevalence and extent of moral evil among men?

5. What is the scriptural definition of sin? What the theological? What is St. Paul's sin in the members? What is man's responsibility for propensities?

6. Can the universality and extent of sin in this world be rationally explained by any hypothesis of pre-existence?

7. What is the statement and criticism of the Pelagian doctrine on this point?

8. What is the Christian explanation of evil? What is Christ's explanation of it, so far as his own words, John ix. 1, bear upon it? What is the doctrine of other Scripture, James, Paul, Job, and Genesis? Is the teaching of all parts of Scripture perfectly one on this subject?

9. In what sense is the actual Divine moral system one of optimism?

10. What are the forms of the doctrine of predestination? Has the Arminian form any advantage over the Calvinistic? What is the true doctrine of human responsibility?

11. What is the relation of the power of the sensuous principle to the need of redemption?

12. What are the five principal forms of theory respecting the constitution of a mediator?

13. What is an outline of the proof alleged and required of the doctrine of the Trinity?

14. What the alleged proof of the Deity of Christ?

15. What are the arguments for a conscious personal pre-existence of Christ, and their force?

16. What support in Scripture and reason for the doctrine of the simple humanity of Christ?

17. What was the plan, so called, of Jesus Christ, and what the different views which have been taken of his aim and expectation?

18. State the objections of the advocates of the governmental theory of the atonement to the satisfaction theory.

19. State what is meant by the moral influence theory.

20. Is the death of Christ presented by himself as the sole ground of forgiveness? Explain the necessity of it.

21. Give the principal characteristics of Christ's martyrdom. Do they afford any reason why forgiveness should be preached in his name?

22. Give the traditional Protestant doctrine of justification by faith, the meaning of St. Paul's "Law," and "Faith," the bearing of Christ's teaching on the doctrine, and state the Christian truth.

23. Give the definition and grounds of spiritual authority. What is the authority of Christ? How is he the objective factor in Christian spiritual development?

24. What is the strength of the argument for endless punishment as a doctrine entitled to be regarded as a part of the Christian revelation, and what is the objection to so viewing it?

25. Has a probation after death any support in the express words of Jesus Christ or his Apostles?

26. What is the essential Christian doctrine of retribution?

### ETHICS. — PROF. STEARNS.

#### *Juniors.*

1. State the relation of moral philosophy to the end of man, and how the end is to be ascertained.

2. Explain the law of limitation stated by Hopkins, and his classification of the mental activities as related to ends.

3. Give an analysis of the desires, and explain the supposed distinction between appetite and desire.

4. Show the relation of this part of our constitution to the world, and to the origin and cure of asceticism.

5. Give the analysis of the affections, the distinction between affection and desire, and the specific forms of affection supposed to belong to man.

6. In what sense are the affections disinterested?

7. State the laws by which the affections are to be governed.

8. Is the moral faculty a distinct function of our nature? Do the diversities of moral judgment disprove such a distinct function?

9. Give an account of the manner in which Bain attempts to defend a derivative origin of this function, with criticism.

10. State the questions which, according to Bain, arise in the discussion of ethical systems, and the method which he pursues in his examination of them.

11. What are the facts of man's moral nature as presented by Jouffroy, and his method of procedure in the examination of systems.

12. Give the results of Bain's examination of Plato.

13. Explain the system of Bentham, with criticism.

14. How does Mill's system differ from previous systems of utilitarianism? Is his explanation of our love of virtue, and of other facts of man's moral experience, satisfactory?

15. Explain the terms, good, right, law, and obligation; state the limits that were presented of the intuitive function of our moral reason, and show how the progress of morality is explained by the combined action of the intuitive faculty, and of our inductive and deductive powers.

16. State what was taught you respecting the direct pursuit of happiness.

#### *Middle Class.*

1. What are the mutual relations of religion and morality?

2. What are the reasons for supposing in man a power of choice, and how do you meet the three principal objections of Edwards, Hamilton, and Mill?



3. Distinguish the Just, the Honorable, and the Right, and explain the relation of the progress of the first two to that of the last.
4. Can we intelligently predicate justice of the Deity?
5. How were the best ancient views a preparation for Christian morality, and how were their defects supplied by it?
6. As to the influence upon morality of systems within the time of Christianity, state the bearing upon morality of pantheism, represented by Spinoza; of naturalism, represented by Taine.
7. The bearing upon morality of modern materialism. The points made against it.
8. The real or supposed bearing upon morality of the doctrine of Darwin.
9. State the limits of natural selection as applied to man, as proposed by Wallace.
10. What is the idea of the state?
11. In what sense is human government of divine origin?
12. Is natural right surrendered by the individual to the state?
13. What is the duty of the state in regard to education?
14. Explain the nature and occasion of the conflict of views between Huxley and Spencer in regard to the duty and right of the state to educate. Give the considerations on either side.
15. What do you say of the charge that Christianity inculcates asceticism, and absence from evil, rather than the energetic pursuit of good?
16. The ground of the right of governments to punish. Give the various views.
17. On what two grounds did Jesus rest the conviction in his disciples' minds of a continuance of life beyond death, and how do these two influence each other?

### *Seniors.*

1. Supposing a normal development of man, and viewing virtue apart from the facts of sin and redemption, what is the general notion of moral virtue?
2. What is its relation to the material world?
3. Mention some of the chief particular characteristics of it; show how it may be specifically different in different individuals, and yet essentially the same in all.
4. Can one virtue exist in isolation from the rest?
5. Give the ancient division into the cardinal or fundamental virtues, that of De Wette, that of Rothe.
6. Explain the compatibility of a harmony of the virtues with the preponderance of a separate virtue in the individual character, and what is meant by talent.
7. What is the result of the actual imperfect evolution of virtue? Show the relation of this result to the fact of redemption.
8. What are the terms by which the Scriptural writers express regeneration?
9. Show how the change is modified by the habits, character, and age of the person when the spiritual development takes place.
10. The relation of it to the power of the "psychical" man.
11. Explain sanctification, Rom. vi. 4; the relation to it of regenera-

tion ; the difference from regeneration ; the use of the law of habit in it ; its relation to the "gifts" or *charismata* of the New Testament, 1 Cor. xii, and its relation to Christian virtue.

12. What is love as an ethical and spiritual principle, and how is it essential to the attainment of the end of the individual and of the collective man ?

13. Explain Rothe's statement : Selfhood is the condition of love, as well as of selfishness.

14. What is the Christian law of marriage and divorce ?

15. What is the relation of family life to the development of man, and what is the duty of Church and State in regard to family life ?

16. Can any comparison be made of the Church with the State as to the universality of the tendencies which lead to outward institutions ?

17. Are the marks of a true or ideal church to be found in the outlines of a church presented in Matt. xvi. and xviii. ?

18. Give the considerations for and against the use of a liturgy.

19. Give the particular form of Onderdonk's Scriptural argument for three orders of the ministry.

## SCIENCE OF THOUGHT. — PROF. EVERETT.

### *Juniors.*

1. State and explain the formula for the second form of the syllogism.

2. How does analogy differ from induction ?

3. What do you understand by static analogy, and under what circumstances is it wholly reliable ?

4. What do you understand by dynamic analogy, and what of its reliability ?

5. State the use of analogy when it is not perfectly reliable.

6. State and illustrate the opposite directions in which reasoning from analogy always tends to operate.

7. State and illustrate the relation of analogy to qualities beyond our experience.

8. Indicate the relation of these results to thought in regard to religious matters.

9. Define quality, and state its dependence upon limitation.

10. Define quantity.

11. What are the different kinds of quantity ?

12. Explain the imperfection which we find when we attempt to let quantity alone take the place of the universal.

13. State and illustrate the law of limit.

14. Explain what is meant by the negative relation of a quality or object to itself.

15. Explain what is meant by the negative relation of a quality or object toward others.

16. Explain the negation of this negation as illustrated by the final cause.

17. State and illustrate the law of differentiation.

18. State and illustrate the law of integration.

## PHILOSOPHY OF RELIGION. — PROF. EVERETT.

*Juniors.*

1. The period in which Hume lived ?
2. What was the relation of Hume to the two leading systems of thought that came after him ?
3. What was the basis of the scepticism of Hume ?
4. What was his position in regard to belief and to experience ?
5. What reasons can you give for not accepting this position ?
6. What was his affirmation in regard to cause and effect ?
7. Into what inconsistency does he fall in regard to cause and effect, when speaking of the law of association ?
8. How can you illustrate the imperfection of his statement in regard to causation ?
9. What is his theory of morality ?
10. How does he defend his scepticism in regard to religion ?
11. What is his position in regard to miracles ?
12. What remarks were made in regard to this position ?
13. What is the general method of reply to his scepticism ?
14. What is the relation of philosophy to religion ?
15. Give some account of "the unconscious" in life, and the relation of it to the understanding.
16. What are some of the ends aimed at by "the unconscious" in nature and life ?
17. State and illustrate the relation of "the unconscious" to the ideas of the reason.
18. State some results of the study of "the unconscious."
19. Define the word "faith."

*Middle Class.*

1. In the general criticism of Herbert Spencer, what was said of the relation between science and religion, and that between religion and faith ?
2. What in regard to the true nature and power of religion ?
3. What suggestions were based upon the fact that this power is also active in us ?
4. What was the first-named contribution of science to religion ?
5. The second ?
6. What two conclusions would follow from the fact of a progressive creation ?
7. What contribution does science make to religion from the fact of the adaptation of every organized body to its surroundings ?
8. State the psychological basis of the system of Spinoza, and compare it with that of the system of Kant.
9. State the relation between the mathematical form adopted by Spinoza, and the nature of his system.
10. What does Spinoza mean by "substance" ?
11. What is meant by "attributes" and "modes" ?
12. What does Spinoza appear to mean when he denies intellect to God ?

13. What is Spinoza's view of the universe, and what difficulties are involved in it?

14. What is his idea of human nature?

15. Whence, according to his view, come differences of opinion?

16. Whence come sorrow and sin?

17. What is his statement in regard to blessedness?

18. State some points of relation between the system of Spinoza and Positivism.

19. Into what inconsistency does Spinoza fall at the end of his treatise? Compare this with a similar inconsistency found in Kant, and illustrate this tendency to like inconsistencies among philosophers.

20. State the meaning of the words "reason" and "understanding" as used by Kant.

21. As used by Hegel.

22. As used by Schopenhauer.

### HOMILETICS. — PROF. EVERETT.

#### *Middle Class.*

1. By what considerations does Vinet illustrate the importance of disposition?

2. What four negative rules does he give for disposition?

3. State and explain the four methods for presenting a subject.

4. State the rules given in regard to the order in which arguments, or other divisions of a subject, are to be presented.

5. State the principles that were suggested in regard to the exordium of a discourse.

6. In regard to the announcement of the plan of a discourse.

7. In regard to transition.

8. In regard to the peroration.

9. Name and compare the principal figures of similitude.

10. What are the purposes for which figures of similitude are used?

11. What are some of the suggestions made in regard to their use?

12. Define metonymy.

13. Define synecdoche.

### ETHNIC RELIGIONS. — PROF. EVERETT.

#### *Seniors.*

1. What are the principal sacred books of the Chinese?

2. Describe the "Kings."

3. What is the most marked difference between the ancient and modern worship of the Chinese?

4. Describe the ancient festivals in honor of ancestors.

5. How did the teachings of Confucius in regard to religion differ from more ancient views?

6. What are the principal sacred books of the Hindoos, with the principal date of each class?

7. Give some account of the Vedas.
8. Give some account of the Puranas.
9. Give some account of the different Hindoo systems of philosophy.
10. Give some account of the Hindoo Triad.
11. What is the Hindoo worship at the present time ?
12. The leading doctrines of Buddhism ?
13. How chiefly distinguished from Brahmanism ?
14. Time and general character of the life of Sakya-Muni ?
15. The chief merits and defects of Buddhism ?
16. Period of Zoroaster ?
17. Discovery of the Zend-Avesta ?
18. General character of the Zend-Avesta ?
19. System of dualism in this religion ?
20. Animal worship in the religion of Egypt ?
21. The three orders of gods ?
22. Moral and religious character ?
23. The sources of knowledge respecting the Greek religion ?
24. Mysteries ?
25. Moral character ?

# EXAMINATIONS IN THE LAW SCHOOL

## FOR THE DEGREE OF BACHELOR OF LAWS.

(June, 1872.)

### FIRST YEAR.

#### REAL PROPERTY. — PROFESSOR WASHBURN.

1. What are the two principal sources of American Law, so far as it is derived from systems of European Jurisprudence, now, or at some time, in force there? From which of them do we chiefly derive the elements of the law of Real Property? and from what system do we borrow the terms in use in treating of real estate, such as "fee," "tenure," "seisin," and the like?

2. To what do we apply "real" when treating of property, and to what "personal"? In what do they differ as to the mode of acquiring and transmitting the one or the other, by parties while alive, or of being disposed of by law, at their death? Do any interests in Real Property pass like personality at the death of the owner? and if so, what are they, and what are they called?

3. In what does a fee simple differ from a fee tail? Upon what statute does a fee tail depend? and what was the nature of them before that statute? In what mode, if at all, could fees tail be changed to fees simple by the common law?

4. How far, if at all, does the doctrine of feudal tenure apply to lands in this country? and if anything like it prevails, to what estates in land does it apply? How are these estates created, and what terms, borrowed from the feudal law, are applied to the parties to the same? Have we anything answering to homage, or anything to fealty recognized in this country?

5. What extent of ownership, in point of duration, is requisite to constitute a freehold? What are some examples of freeholds of inheritance and not of inheritance? How can these be created? What life estates, if any, does the law itself create? and what are some of the duties it imposes on the tenants as to the mode of managing them?

6. What is the difference between estates for years, estates at will, and estates at sufferance, and how are they severally created, and in what way are they determined? What is an estate from year to year, and how does it differ from an estate at will in the mode of creating or determining it?

7. In respect to leasehold estates, what would be an example of privity of contract and privity of estate between parties interested therein? If the lessor convey his interest, to whom is the lessee liable to pay rent?

How far may the assignee of a lessor or lessee be liable for, or avail himself of, a covenant or condition in a lease, made by or to his assignor, in respect to the estate? and by what statute is this right or liability created?

8. What is the effect of a condition in a deed if broken by the grantor? By whom and how may it be taken advantage of? Why are conditions inserted in leases? What is the difference between a condition at common law and a mortgage, in respect to the person by whom it is to be performed? How are the rights of a tenant of an estate upon conditions affected by a breach thereof, before entry made to enforce it?

9. State in what respects the rights of tenants in common, of lands, differ from those which are held in partnership? If one of the owners of either die, what disposition is made, by law or equity, of his share of the estate? and what are the rights of his widow and heirs, in respect to the same, distinguishing between the cases of land held in common and that held in partnership?

10. What rights have husbands and wives, by the common law, in each others' estates of inheritance? If two tenants in common, of lands, intermarry, how do they then hold their estates? If lands are conveyed to husband and wife by deed, how do they hold them? And how far can the husband effect the wife's right in the same by conveying the estate?

11. If one buys an estate of a deceased person whose widow survives him, and finds a mortgage outstanding thereon, and pays and obtains a discharge thereof, what is the effect so far as her right of dower is concerned? If she can claim it, what, if anything, has she to do before bringing her writ of dower against the tenant to recover the same? If bound to contribute towards the mortgage, for what portion of the debt must she do this?

12. If one, having mortgaged an estate, conveys it afterwards in parcels to different purchasers, can one of these redeem his parcel by compelling the mortgagee to accept a proportionate part of the debt? If not, and he has to pay the entire debt, what are his rights, as against the other purchasers, in respect to holding a claim on their shares for security for what he may have paid? and what difference would there be in this respect, if any, between the cases where all the parcels are conveyed at the same time and where they are conveyed in succession, and he were, for example, the third of five successive purchasers with warranty?

13. By the laws of what State are the conveyances of lands regulated? If a deed were required for this purpose, what would be implied as necessary, in form and execution, to constitute such an instrument? and what is held to be a seal?

14. How did the Statute of Uses operate to create a legal estate in fee in the purchaser of lands? and how did he acquire a seisin of the same? What class of deeds, known as conveyances, under the Statute of Uses, most nearly answer to the deeds generally in use in this country? and how is the use therein raised or declared, and in whose favor?

15. What effect has an infant's deed of land, or what that of a feme-covert at common law? How did married women bar their claims of dower in their husbands' estates, in England, before the statute of William IV. ? and how is it done in this country? Does the act of a wife, in such case, operate as the grant of a title or estate? if not, what is its legal effect?

## CONTRACTS. — PROFESSOR LANGDELL.

1. At what time or times may the consideration of a promise be given and received in respect to the time of the promise itself?

2. Under what circumstances will an executed consideration support a promise, and what kind of promise will it support? Give an instance of a promise supported by an executed consideration.

3. Will, or not, a sale and delivery of goods by the plaintiff to a third person at the defendant's request support a subsequent promise by the defendant to guarantee the payment of the price of such goods? Why?

4. If a statute should be passed, abolishing all forms of action, and declaring that only such facts need be stated in a declaration as are required to be proved on the trial, what effect, if any, would such statute have upon the subject of executed consideration?

5. A in Boston offers to sell B a bill which he proposes to draw on C in London; B inquires of C by telegraph if he will accept the bill, and the latter answers that he will; whereupon the bill is drawn, purchased by B, and paid for. A becoming insolvent, C refuses to accept the bill. Can B or not maintain an action against C, and why?

6. A being indebted to B, and the latter threatening to sell securities which he holds as collateral, A procures C to guarantee the debt in writing; whereupon B forbears to sell the securities. A having become insolvent, and the securities having become worthless, can B or not hold C on his guaranty, and why?

7. A and B being engaged to be married, it is mutually agreed between A and C that A shall keep his engagement with B and marry her, and that C shall pay A \$10,000 as soon as the marriage takes place. Is C's promise binding or not, and why?

8. A being indebted to B on a bond in the sum of \$1000, it was agreed between them that A should pay, and that B should receive, the sum of \$500 in full satisfaction and discharge of such debt. Can B or not maintain an action of assumpsit against A on such agreement, and why?

9. It is agreed between A and B that A shall serve B for one year, and that B shall pay him therefor \$500. What is the consideration of the promises respectively?

10. A and B make an executory agreement with each other for the purchase and sale of certain goods. What is the consideration of the promises respectively?

11. In the cases stated in the questions 9 and 10, are the promises dependent or independent, and why? If you say they are dependent in either case, state the nature of such dependency, and whether there is any and what difference between the two cases in that respect.

12. If a lessee covenant to keep the demised premises in repair, and the landlord covenant to find timber for such repairs, are the covenants dependent or independent, and why? If dependent, state the nature of such dependency, and compare this case with those stated in questions 9 and 10.

13. A gave to B a bond, conditioned to convey to B a certain piece of land on the 1st day of July, 1872, and B at the same time gave to A his promissory note for \$1000, payable on said 1st of July; B having in fact bought the land for \$1000, and the note being given for the purchase-



money. Can A or not enforce payment of the note without conveying the land or offering to do so, and why ?

14. A being indebted to B, it is agreed between B and C that B shall forbear perpetually to sue A, and that C shall guarantee the payment of said debt on or before January 1, 1873. Are the promises of B and C dependent or independent, and why ?

15. Are the covenants in a deed of apprenticeship dependent or independent, and why ?

### TORTS. — MR. GREEN.

1. What is the meaning of the word "force" when used as a legal term ?

2. What is a trespass ?

3. How does the action of trespass differ from the action of trespass upon the case ?

4. When upon the same facts can an action of tort or an action of contract be brought at the option of the plaintiff ?

5. Is the mere happening of an event even *prima facie* evidence of negligence ? If yes, under what circumstances ?

6. Who can interfere to prevent an affray ?

7. What are the material averments in a declaration at common law for an injury caused by a ferocious dog ?

8. What is a contempt of court ? Who can punish for it ? How is it punished ? What proceedings are requisite ?

9. Under what circumstances in an action of tort will the court set aside a verdict because they think the damages are out of proportion to the injury ?

10. A and B fight a duel ; both are wounded : can one maintain an action against the other ? Why ?

11. In an action for slander or libel what are "privileged communications" ?

12. Who are to be plaintiffs and who defendants in actions for torts ?

13. When is possession a good title ?

14. What is meant by a "tort" ?

15. When does the negligence of a plaintiff prevent him from maintaining an action ? Why ?

### CRIMINAL LAW. — MR. GREEN.

1. What is necessary to constitute the crime of treason ?

2. When is cheating an indictable offence ?

3. What false pretences are indictable ?

4. What is necessary to constitute the crime of conspiracy ?

5. What is put in issue by the plea of not guilty ?

6. In what county must an indictment be found ? Is there anything peculiar in this respect in regard to an indictment for larceny ? What ?

7. What is subornation of perjury ?

8. How far is an intent necessary to make an act criminal ?

9. What is the difference between larceny from the person and robbery ?

10. What is meant by "being put in jeopardy," and what is the law upon the subject?

11. What is meant by "the burden of proof," and upon which party is that burden?

12. Does the burden of proof ever shift, and if it does, under what circumstances?

13. In indictments, for what offences are technical allegations necessary? Give an example of what you mean by a technical allegation.

14. To what extent must allegations of time and of place be proved?

15. What is a felony? What a misdemeanor?

### CIVIL PROCEDURE AT COMMON LAW. — PROFESSOR LANGDELL.

1. Enumerate the different forms of action which are branches of the action on the case; and state in regard to each whether it is an action *ex contractu* or *ex delicto*.

2. What is the difference between special assumpsit and indebitatus assumpsit? Give an instance of each.

3. Give an instance in which debt and assumpsit are concurrent remedies; also an instance in which debt will lie and assumpsit will not; also an instance in which assumpsit will lie and debt will not.

4. When debt and assumpsit are concurrent remedies, is there any and what difference in the amount of damages which the plaintiff will be entitled to recover in each? What is the *ad damnum* clause in a declaration, and what office does it perform?

5. Give an instance in which debt and covenant are concurrent remedies; also an instance in which debt will lie and covenant will not; also an instance in which covenant will lie and debt will not. What is the proper action to be brought on a bond, and is there or not a choice of actions in that case?

6. Are assumpsit and trover ever concurrent remedies? If so, when, and on what principle?

7. In what cases does replevin lie at common law, and who is entitled to possession of the property during the pendency of the action, and why?

8. Is, or not, a party allowed both to plead and demur to the same matter, and why?

9. What are the necessary allegations in the following indebitatus counts respectively, viz.: goods sold and delivered, money had and received, money lent, money paid, and work and labor?

10. Is it, or not, an objection to a special plea, that the matters stated in it might be given in evidence under the general issue, and why?

11. In an action founded upon contract, is it necessary for the plaintiff to aver performance of conditions precedent, or may he leave it to the defendant to show their nonperformance? and upon whom is the burden of proof at the trial?

12. In an action sounding in damages, if the plaintiff alleges special damages in his declaration, and the defendant admits the cause of action, but denies the special damages, what course should the defendant's attorney adopt?

13. In an action sounding in damages, if the declaration is demurred to, and the demurrer is overruled, what further must the plaintiff's attorney do in order to obtain a final judgment against the defendant?

14. At what stage of the proceedings in an action can the plaintiff declare against the defendant, i. e., what must be done before the plaintiff can declare?

15. When issues in law and issues in fact are joined in the same action, what course should the plaintiff's attorney adopt in order to have them decided?

## SECOND YEAR.

### REAL PROPERTY. — PROFESSOR WASHBURN.

1. Are Uses corporeal or incorporeal? What estates might be had in Uses; and how before the statute of Henry VIII. might they be created or transferred?

2. In what way may trusts be created? If the statute requires any formality in declaring express trusts, what is it? What trusts, if any, are not within the statute, in respect to the mode of declaring or creating them?

3. If a trustee dies or declines to act, how can the trust be executed? And what court has cognizance of the matter? What is the effect if a trustee convey the trust estate to a third party?

4. Give an example of a Remainder; of a Cross Remainder and of a Contingent Remainder.

5. What is essential to the creation of a valid contingent remainder? How, at common law, could a contingent remainder be defeated? Could this be done after the contingent events, upon which the remainder depended, had happened?

6. (1) Devise to A, a widow, so long as she remains unmarried, and on her marriage, to B. (2) Devise to A, but if she marries, then to B. Which, if either of these, is a remainder? and what kind of a remainder? and which, if either, is an executory devise? and wherein do they differ in their legal effect?

7. What is understood by the rule in Shelley's case? Is it in use in this country? If so, how far? How does the abolishing the rule by statute change the estates which, in England, come within the rule?

8. How does the doctrine of springing uses operate in creating a freehold in future? Thus if A conveys to B to the use of C when he is thirty years old, how and when, if ever, does the legal estate become vested in possession in C?

9. If a conveyance be to A with a power to appoint to such uses as he should see fit by deed, and in default of such appointment to the use of himself, in how many capacities does he stand, at his election, to the estate? and if by deed he appoints it to B, from whom would B derive his title to the estate?

10. A being in possession of a term for an hundred years, devised it to B for life, remainder to the son of B then living. Would such devise be good at common law? If not, why? Is it good by the law as it now is? If so, under what class of interests is it included?

11. What analogy is there between prescription and limitation in the mode of gaining estates? Does either, and which, apply to incorporated hereditaments? What are some of the essential requisites towards gaining a title by these?

12. Who could make wills by law before the Statute of Wills of Henry VIII.? How, if at all, was this done before that statute?

13. Are courts more or less strict in construing wills than deeds, in the matter of creating estates without apt words of limitation? Give some examples of creating fees simple by will without the word heirs.

14. What is understood by taking lands by eminent domain? If lands are taken for highways or railroads, in whom is the fee? and what does the public acquire? and if the same are discontinued, whose is the land they occupied?

15. What is necessary to establish a title under a devise by a will, in a trial of the question in court in a suit to recover the land? How far, in such trial, could a party to such suit contest the sanity or capacity of the testator? or show that the devise was procured by fraud or undue influence?

#### CIVIL PROCEDURE AT COMMON LAW.—PROFESSOR LANGDELL.

1. How do you reconcile the joining of several causes of action in one declaration with the rule against duplicity?

2. In trespass *quare clausum fregit*, if the defendant, by a single plea, denies the breaking and entering, and also denies that the *locus in quo* is the plaintiff's close, will, or not, the plea be bad for duplicity, and why? What would be the effect of the plea of the general issue in the case supposed, i. e., how much of the declaration would it put in issue, and why?

3. If a widow be sued on a promissory note, given while her husband was living, and she pleads her coverture as a defence, is it or not a good replication that, after her husband's death, she promised for a sufficient consideration to pay the note? Why?

4. A declared against B in assumpsit that "in consideration that A would execute to B a general release, B promised to pay A one hundred dollars." Does the declaration or not state a cause of action, and why?

5. When the plaintiff recovers judgment by default for want of a plea, can the defendant, or not, bring a writ of error, and why? If he can, what question or questions would the court of error have to decide?

6. If a motion for a new trial be improperly granted or refused, what remedy, if any, is open to the party aggrieved, and why?

7. Can, or not, a motion for a new trial be made on a bill of exceptions, and why?

8. What is a nonsuit? At what stage of the action, and where does it take place?

9. If a judgment be recovered against A and B jointly, out of what property may it be satisfied?

10. If a judgment be recovered against A and B jointly, and A be taken

in execution, what effect, if any, will that have in the way of satisfying the judgment?

11. Give an instance of a plea which properly gives no color; also an instance of one which gives implied color; also an instance of one which is bad for want of implied color.

12. When is express color necessary, and what object is gained by pleading a plea which requires express color?

13. What is the difference between a special case and a special verdict, and what is the object of each?

14. To an action of trespass *de bonis asportatis*, the defendant pleaded that the plaintiff never had any goods. Was the plea good or not, and why?

15. If a declaration contain several counts, and the defendant plead a single plea in bar to the entire action, and the plea is a good answer to some of the counts, but not to the others, what is the consequence, and what course should the plaintiff's attorney adopt?

#### EVIDENCE. — PROFESSOR HOLMES.

1. What is meant by the court taking judicial notice of facts? State some of the matters of fact that come within the rule.

2. Who decides the questions whether there is any evidence or not, and whether the evidence is sufficient or not? State the proper meaning of the maxim that if there be a *scintilla* of evidence it must go to the jury.

3. On what ground is it that evidence offered by one party against another party can be admissible to bind him and conclude his rights? Explain the force of the phrases, "*Res inter alios acta*," "*Res inter se acta*," and "*Res gestæ*."

4. What are the principal reasons why Hearsay is not admissible? Name some of the exceptions to the rule with the reasons of them.

5. Under what circumstances and restrictions are the entries of clerks, living or deceased, admissible in evidence? In what case, if any, and to what purpose or extent, are the declarations or book-entries of a third person, deceased, admissible, after his death, in a suit between other parties?

6. In what sort of cases and of what principle are dying declarations admissible?

7. On what grounds, and to what extent, are the admissions of a party admissible against himself? State the distinction between admissions and confession.

8. State what a subscribing witness to a Will must see and know in order to make him a competent witness to prove the Will.

9. What are the general rules governing the admissibility of parol evidence to contradict or vary, or to explain or interpret, written instruments, or to prove intention *aliunde*?

10. What is meant by the competency of witnesses? State the principal grounds of incompetency, and give the general rule as to capacity and as to interest.

11. What is the rule of admissibility as to "experts"? In what special cases is Opinion or Belief admissible?

12. In what mode is a judicial record to be proved? or a written contract? or an official register?

13. What is the mode of proving foreign laws? and to what extent is that law a question of fact for the jury?

14. Under what circumstances will a deed or other instrument, over thirty years old, be admitted to prove itself?

15. State some of the circumstances that will excuse the production of a subscribing witness, and give the rule of diligence as to search for him; and state the requisites of competency to enable a witness to prove handwriting.

#### EQUITY. — PROFESSOR HOLMES.

1. When a general jurisdiction in law or equity is conferred on the courts, by the Constitution or by statute, in what way is it to be ascertained, judicially, what is to be regarded as equity, and what as common law?

2. What is the nature and ground of the distinction between the concurrent and the exclusive jurisdiction in equity? State the difference in origin and nature between a strictly legal right and a purely equitable right.

3. What is the principal difference between remedy at law and relief in equity, as a mode of redress?

4. What is the meaning of the maxim, that "where the equities are equal the law will prevail"?

5. In what sort of case will a court of equity reform or correct a written instrument on the ground of mistake? Define the nature and limit of the distinction between mistake of law and mistake of fact, as to relief in equity.

6. Has a court of equity any jurisdiction to set aside a Will on the ground of fraud? or, if any, in what way, and to what extent, will the court proceed in such case?

7. What is the purport of Mr. Wigram's rule as to notice of a prior equity, incumbrance, or conveyance? and what will amount to constructive notice?

8. What are the specific grounds of the equity jurisdiction in matters of Account? In cases of Partnership, what state of facts or circumstances will justify the appointment of a Receiver?

9. How does an equitable lien differ from a lien at law?

10. Define the equitable doctrine of marshalling assets or securities.

11. In what cases, and on what grounds, will a court of equity interfere to compel the delivery up and cancellation of written instruments? or to enforce the delivery of specific chattels? or to decree the specific performance of a parol contract for the sale of lands?

12. How does an express trust differ from an implied or resulting trust? Give an example of the latter, and explain the effect of a valuable consideration in cases of equitable assignments, liens, and conversions, and vendor's liens.

13. What is the meaning of a wife's equity for a settlement?

14. What are the principal parts of a Bill in Equity? State the special purpose of the Stating-Part, and the special use or advantage of the Charging-Part.

15. State the general rule in respect of certainty in the frame of a Bill. What is meant by scandal? what by impertinence?

16. What is the difference between a direct interest and a merely consequential interest, in reference to parties? Give an example of the latter.

17. What is to be understood by that privity of interest which renders a person liable to be sued, and makes him a proper or necessary party defendant? In what sort of case may he disclaim?

18. What is the general nature and object of Bills not original? Specify when a Supplemental Bill is proper; and when a Bill of Revivor; and when a Bill of Revivor and Supplement; and when a Cross-Bill.

19. What is the nature and frame of a pure plea? of a negative plea? and of an anomalous plea?

20. State the general nature and frame of an answer, as well with reference to the plaintiff's case as to the defendant's case, and in respect of both relief and discovery.

# EXAMINATION PAPERS IN MEDICINE.

## FIRST YEAR'S STUDIES.

### ANATOMY. — DR. HOLMES.

1. How many kinds of epithelium are there, and where is each found?
2. Mention the different forms in which the *white* fibrous substance is used in the system.
3. Describe the muscular tissue of animal, and that of organic life, and mention where each is found. Which is found in the heart?
4. Describe the structure of bone.
5. Describe the structure of the two forms of nervous substance, — the gray and white.
6. What is a serous membrane, and how many of them are there?
7. Describe the different anatomical structure of various glands, and give examples of each.
8. Describe the scapula and its connections with the trunk.
9. Describe the muscles that *flex* the leg on the thigh.
10. Describe the *Obliquus Externus*.
11. What are the extent and relations of the common carotid artery?
12. Describe the circulation in the liver.
13. Into what vein do the cerebral sinuses empty themselves?
14. Describe the lungs.
15. What are boundaries of the Inguinal Canal?
16. Enumerate the cerebral nerves.
17. What is the distribution of the 5th pair?
18. Mention the chief ganglia of the sympathetic system.
19. What are the *transverse* commissures found uniting different parts of the Encephalon?
20. What anatomical elements are found in the retina?

### PHYSIOLOGY. — DR. BOWDITCH.

1. What is the source of the force manifested in the animal body?
2. Define what is meant by a "nutriment."
3. Describe the mechanism of deglutition.
4. Describe the mechanism of vomiting.
5. Why does not the gastric juice digest the walls of the stomach?
6. What reasons are there for supposing that albuminoid substances may be absorbed as such, i. e. without being changed into peptones?
7. What gases are found in the intestine, and what is their origin?
8. What are the functions of the bile?
9. What are the functions of the pancreatic fluid?
10. What are the functions of the blood?



11. Explain the cause and the mechanism of the respiratory movements.
12. What is the effect of respiration on the arterial blood-tension?
13. Explain the action of the vasomotor nerves in regulating the heat of the body.
14. In what form and by what organs is the nitrogen of the food eliminated from the body?
15. What is a reflex action? Give examples.
16. What centres of reflex action are situated in the medulla oblongata?
17. What is the effect of section of the vagus nerve?
18. Explain the necessity for, and the mechanism of, accommodation in the eye.
19. What is the function of the Eustachian tube?
20. How many distinct sorts of impressions are conveyed through the sense of touch?

#### GENERAL CHEMISTRY. — DR. WOOD.

1. What is Combustion? Explain the effects produced by the ignition of large quantities of coal-gas and air.
2. What is a deodorizer; a disinfectant; an antiseptic? Explain the bleaching and disinfecting action of Chlorine.
3. What is understood by the term quantivalence?
4. Describe the properties of K I. How can you detect the presence of K I O<sub>2</sub> in K I?
5. Mention some of the sources of C O<sub>2</sub> in the atmosphere. Why does the proportion of C O<sub>2</sub> and O in the atmosphere remain the same?
6. How can you distinguish between the salts of K, Na, and N H<sub>4</sub> by means of Pt Cl<sub>4</sub>?
7. Describe and write the reaction which takes place when (N H<sub>4</sub>)<sub>2</sub> C<sub>2</sub> O<sub>4</sub> is added to the solution of a Calcic salt.
8. What is the difference between a Ferrous and a Ferric salt? How may the one be converted into the other? Give the characteristic tests for Iron, distinguishing between Ferrous and Ferric reactions.
9. What are the formulæ for Arsenious and Arsenic acids? Write two reactions showing the distinction between arsenites and arseniates.
10. How may Antimony be detected in the presence of Arsenic?
11. Mention the principal tests for salts of Copper.
12. What is the difference between Mercurous and Mercuric salts? Write the formulæ for Mercurous and Mercuric Chlorides.
13. What is the action of Stannous Chloride (Sn Cl<sub>2</sub>) upon Mercurous and Mercuric compounds? Of Potassic Iodide (K I)?
14. What metals are precipitated from acid solutions by H<sub>2</sub> S?
15. Give the separation of members of the 6th Group from each other, giving the reasons for each step of the process.
16. How may Cane and Grape Sugar be distinguished from each other analytically?
17. What is fermentation?
18. Explain the action of heat and H<sub>2</sub> S O<sub>4</sub> upon Alcohol.
19. How may Alcohol be converted into Acetic Acid? What is the intermediate step in the process?
20. What are the principal monobasic alcohols? What is the relation between Alcohol, Ether, Acetic Aldehyd, and Acetic Acid?

## SECOND YEAR'S STUDIES.

## MEDICAL CHEMISTRY. — DR. WHITE.

1. What organic chemical products are common to vegetable and animal life?
2. What progressive chemical changes take place in a piece of bread when eaten?
3. What are the products of metamorphosis of muscular tissue?
4. Of what do fats consist? What is the chemistry of soap-making? What is the difference between hard and soft soaps?
5. Nature of the coloring-matter of the blood? What are its relations to the pigment of the bile? How may blood-pigment be recognized when dried? Can human blood stains be distinguished from those of other animals?
6. Chemical relations of Urea to Uric Acid? What are the derivatives of Uric Acid?
7. What chemical changes take place in Urine on standing?
8. How determine whether the alkalinity of Urine be due to volatile or fixed alkali?
9. What abnormal constituents are found in Urine?
10. What are the possible fallacies in the Nitric Acid test for albumen? What connected with the heat test? Why not combine these tests?
11. What are the chemical reactions in Trommer's test? How determine the quantity of sugar in a pint of diabetic Urine?
12. How determine the presence of Oxalate of Lime in a Urinary Calculus?
13. Definition of a poison?
14. Symptoms and antidote in poisoning by Phosphorus? How may it be detected in the excreta?
15. What disease does acute arsenical poisoning simulate? Methods of detecting arsenic in wall-paper?
16. Process for detection of lead in the Urine?
17. What are the principal animal poisons?
18. What is the smallest fatal dose among the alkaloid poisons?
19. How may the presence of those alkaloids in the tissues be determined for which no chemical tests are known?
20. Describe the process for extraction and recognition of strychnia in the organs and fluids of the body.

## MATERIA MEDICA. — DR. EDES.

1. What oils and fats are used in medicine? Doses? Prescription (all Latin or all English) for cod liver oil, to disguise taste?
2. Which evaporates most rapidly, alcohol, water, glycerine, or ether? Which next? Next? Least? What practical bearing have these facts?
3. What preparations of Ammonia are used in medicine? Doses?
4. What of Iodine?
5. What vegetable acids?
6. Mention eight preparations of iron, one of them being for local use; their doses and incompatibles.

7. Mention and describe briefly the active principles, preparations, and doses of Ipecac, Opium, Colchicum, Ergot, Gentian, Prun. virg., Aloes, Senna, Valerian, Cannabis Indica.

8. Mention members of mint family used in medicine.

9. In what ways may Chloroform be administered by the mouth?

10. What are the chemical steps from grape juice to brandy? To vinegar?

11. What is the difference between sherry, champagne, hock, and port?

12. Write a Latin or English prescription for Cathartic Pill, Draught, Cough Medicine, or Narcotic, to contain at least four ingredients.

### PATHOLOGICAL ANATOMY. — DR. JACKSON.

1. Intussusception. Definition, forms, seat, extent, condition of mucous membrane, of peritoneum, result?

2. Internal strangulation. Condition of peritoneum, varieties, result?

3. Mortification. Causes, color, consistence, degree of moisture, result?

4. Dropsy. Causes, character of fluid, seat, varieties?

5. Hemorrhage (non-traumatic). From stomach, lungs. Method of escape of blood from vessels, and subsequent changes?

6. Coagulation. Ante and post mortem. Cause?

7. Cephalhæmatoma. Seat, appearance, result, cause?

8. Intra-cranial hemorrhage. Varieties as to cause, seat, frequency, and amount, with result?

9. Effusion of blood into kidneys and bladder. Causes?

10. Pleurisy. Seat (front or back, apex or base), products, amount, and rapidity of their formation, causes, results? Explain the formation of adhesions.

11. Peritonitis. Causes, seat, effect on abdominal organs, result as to membrane, and inflammatory products?

12. Simple meningitis. Seat, and membranes affected?

13. Tubercular meningitis. Seat, membranes affected, products of inflammation, character and amount of ventricular contents, conditions of septum lucidum, size and seat of tubercles, condition of brain and other organs?

14. Bronchitis. Varieties, seat, appearance, and character of secretion, results?

15. Croup. Seat, extent, how distinguish from diphtheria? How often complicated with pneumonia?

16. Laryngitis. Cause, tissue affected, extent, product?

17. Dysentery. Seat, appearances in early and late stages, products, character of ulcers and determination of their age, result, frequency and character of hepatic complications?

18. Cystitis. Describe early and advanced stages, condition of vesical walls, cavity, and contents, causes, complications.

19. Typhlo-enteritis. Cause, complications, results?

20. Granular liver. Synonymes, meaning of cirrhosis, tissues affected, appearance, effects, and how explained?

## THIRD YEAR'S STUDIES.

## THERAPEUTICS. — DR. EDES.

1. Mention eight cathartics, their doses, peculiarities of action, and cases to which adapted.
2. What diuretics increase water of urine? Which solids?
3. What is the action of a therapeutic dose of digitalis on the heart? of a poisonous dose? When and how does it act as a diuretic?
4. Describe stimulant action of morphia; poisonous action. How would you proceed in a dangerous case of the latter kind? What are the doses and different methods of application? By what circumstances is the dose modified? What therapeutic value have the other alkaloids of opium?
5. Upon what two theories is the action of quinia explained? What are its applications, exclusive of malarial diseases?
6. Describe methods of action of preparations of iron; of arsenic; of mercury; action of acetate of potassa in rheumatism.
7. What are the symptoms of lead poisoning? How treated? Write any prescriptions which might be necessary.
8. Write such prescriptions and rules of diet as it might be necessary to give in a case of chronic constipation; in a typhoid case in the second week with temp.  $104^{\circ}$  to  $105^{\circ}$ , delirium and wakefulness, and considerable diarrhoea.

## SURGERY. — DR. BIGELOW.

1. Hydrocele, varicocele, and scrotal hernia; their symptoms and differences?
2. What is cataract?
3. What is an acute bubo?
4. When and how would you give mercury in venereal diseases?
5. What is a varicose ulcer?
6. What is the difference between compression and concussion of the brain?
7. Describe the method of finding the femoral artery and of applying a ligature to it.
8. What is the cause of swelling in inflammation?
9. Describe the different dislocations of the hip-joint. What constitutes the difficulties in their reduction?
10. What is a carbuncle, and how would you treat it?
11. What is a boil?
12. What is an abscess?
13. What are the symptoms of hip disease?
14. What are the symptoms of caries of the vertebræ (Pott's disease)?
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18. How would you do tracheotomy?
19. What is "cancer of the lip"?
20. How would you amputate a thigh?

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